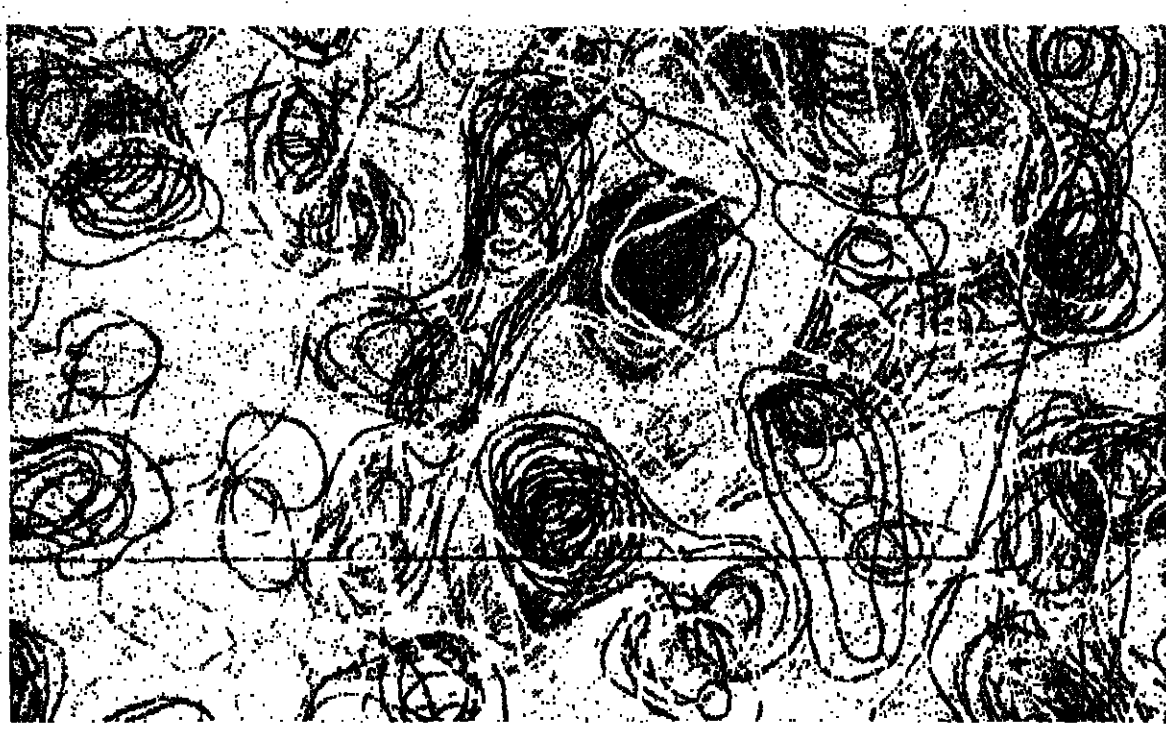


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# In defence of positivism

PETER MEDAWAR has brought together some recent essays and lectures in which he looks at general problems of philosophy and civilisation from his standpoint as one of the most distinguished living biologists. *The Hope of Progress* begins and ends with two principal pieces—“Science and Literature” and “On the Effecting of All Things Possible”. In between there are shorter essays on psychanalysis, on the work of the National Institute for Medical Research, of which he was for so long a distinguished director; two mainly concerned with the genetic improvement of man, and a review of J. D. Watson's well-known book *The Double Helix* about the discovery of the structure of DNA. They all have that elegance and lucidity which we have come to expect from Sir Peter. He is one of the few scientists of today with a technical competence in handling the written word which earns his essays a claim to be literature in their own right. The sense of a personal style is very strong; perhaps a somewhat swishbookish style—an eighteenth-century elegance not without a hint of the Rake. “Anyone who thinks otherwise [about an interpretation of Blake's views on the relations between the imaginative faculty and reason] is a fool or a knave”: do people describable as fools or knaves really have any views on this topic, one way or the other?

The essays must also, of course, be judged on their content, as science or as philosophy. As science they are, as would be expected from someone of Sir Peter's authority, almost faultless. It might perhaps be argued that in the discussion of the possibilities for the genetic improvement of man he presses his arguments further than is wholly justified. He argues that the case for “positive eugenics”—that is for constructive rather than merely remedial eugenics—is based on the model of stock breeding. If horses, dogs and cattle can be improved by selective breeding, it is argued, why cannot human beings? Besides giving the moral and political reasons for rejecting this suggestion, Sir Peter provides a scientific argument against it. This is based on the fact that stockbreeders nowadays realize that they are dealing with populations of animals and that all populations of animals must, under natural circumstances, contain a wide range of different hereditary factors. If they wish to aim at uniformity in such desirable characters as rapid-growth-rate in broiler poultry or pigs, they may achieve this by producing uniform cross-breeds, which are hybrid and would, if allowed to breed further among themselves, produce very varied offspring, many of them having little economic value. The whole rationale for any attempt to improve the genetic endowment of mankind has therefore, Sir Peter claims, disappeared along with the out-of-date theory of stock breeding on which it was originally founded. However, against this it might be urged that breeders of the most im-



Art in science: electron density contours of the myoglobin molecule. Reproduced from C. H. Waddington's *Behind Appearance: a Study of the Relations between Painting and the Natural Sciences in this Century* (Edinburgh, 1969).

portant type of stock, dairy cattle, do not use the methods Sir Peter describes. The improvement of these animals involves keeping in being a heterogeneous gene pool, and trying to inject into it in every generation useful rather than harmful genes. There is no obvious reason, at the level of genetic mechanisms, why one could not keep adding useful genes to a human gene pool. The biological weakness of such a suggestion does not arise mainly, as Sir Peter argues, from misunderstanding about the nature of the genetic processes involved; it comes from the practical impossibility of deciding what one could mean by good genes, and even if one could decide this, the difficulty of discovering them. The two major pieces in the book are not science in the same sense as

P. B. MEDAWAR:  
*The Hope of Progress*  
133pp. Methuen, £2.

the questions we have just been discussing: they belong rather to philosophy. In the second of these, Sir Peter appears as a defender of science against the attacks which have been made on it in recent years, when a mood of pessimism and disillusionment has led many to repudiate the notion of progress and to advocate casting out science along with it. Sir Peter answers robustly: “To deride the hope of progress is the ultimate fatuity, the last word in poverty of spirit and meanness of mind.” And to set the tone of his counter-attack, he chooses as the title of his essay a gallant phrase from Francis Bacon, perhaps the main

Sir Peter's own view of the nature of science would probably be difficult to defend against such an attack. He is a positivist, committed to the view that science works according to a “hypothetico-deductive” scheme, which he calls “the most important methodological discovery of modern thought”. According to this, the essential procedure is, first, to formulate, by means of imagination, a hypothesis from which certain conclusions can be deduced about how things should operate in the real world.

Originally, when the scheme was first propounded, the second stage was to perform experiments to see if they did so operate; and if the deductions were confirmed, the hypothesis would be said to be proved. Later, logical analysis rendered the notion of positive proof less acceptable, and Sir Peter claims to be a follower of Karl Popper, who modified the scheme by suggesting that, even if we cannot definitely prove a hypothesis, at least we disprove it if things do not operate as we deduced they should. But, whether we lay more stress on agreement or disagreement between deductions and experimental observations, what we are supposed to be doing, according to this view, is discovering the “truth”. And of this, Sir Peter writes: “When the word is used in a scientific context, *truth* means, of course, correspondence with reality. Something is true which is ‘actually’ true, is indeed the case.” There lies the nub; if something “corresponds with reality”, or “is indeed the case”, does it necessarily comprehend the whole of the reality in question, is it all of the case?

Sir Peter's views on this come closest to explicit expression in the first essay, his Romanes Lecture on “Science and Literature”. He explains his purpose thus:

If I had to choose a motto for this lecture, I should turn a remark of Lewis Dickinson's upside down. “When science arrives,” said Lewis Dickinson, “it expels literature.” ... The case I shall find evidence for is that when literature arrives, it expels science. Sir Peter argues that literature expels science by a willingness to accept a criterion of truth less rigorous than that which he has defined for science: In this second conception of truth, a structure of imaginative thought—for example, a myth, especially if it appeals to magical agencies—will be judged true if it is all of one piece, hangs together, doesn't contradict itself, leaves no loose ends, and can cope with the unexpected. ... All scientific theories must make sense, of course, but in addition they are expected to conform to reality, to be empirically true. It is the relaxation of this condition, or the failure to enforce it, which Sir Peter sees as the characteristic of literature. Sir Peter prints a reply to his Romanes Lecture by John Holloway, who questions rather sharply, and considerably more thoroughly than one can hope to suggest here, not only the validity of Sir Peter's particular

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# The impossibility of isolationism

ROY JENKINS:  
Afternoon on the Potomac?

A British View of America's Changing Position in the World.

59pp. Yale University Press. £1.50.

The lectures comprised in this small but characteristically elegant work were delivered in 1971, at Yale University, to commemorate Henry Stimson, who served as President Hoover's Secretary of State and President Roosevelt's Secretary of War. There is perhaps an appropriate irony in the fact that the first British lecturer on the foundation should be a man who has, like Stimson, earned the reputation of independence of mind and freedom from dogmatic commitment to a single party-line, right or wrong. When the lectures were delivered, Roy Jenkins was still Deputy Leader of the Labour Party, though already visibly uncomfortable in the role because of divergences and shifts of policy over Britain's approach to membership of the European Economic Community. There will therefore be special interest in his second lecture on "Britain's Changing Perspective: 1945-71". The first and third lectures, which deal primarily with the position of the United States in the world (before and after 1963 respectively) are interesting in a more conventional and less personal way.

Mr Jenkins argues that the British application to join the EEC should not be seen as a return to Europe after a prolonged absence, because there was no absence. "Britain has always been primarily a European rather than an imperial power." All our most memorable battles were fought in Europe for European causes. At the turn of the century Britain tried to turn her back on Europe in "splendid isolation", but that was a short-lived aberration, not the norm. (It was also, it might be added, the slogan of the most anti-imperialist Prime Minister of modern times until Attlee.) Mr Jenkins hints even that the fresh involvement in European warfare in 1914 might have been in part a consequence of the attempt at detachment. Between the wars, by contrast, British foreign policy was predominantly Eurocentric. Anthony Eden travelled extensively in Europe, but before the Second World War he visited Moscow only once, Washington and the Commonwealth or Colonies not at all. Much the same relationship of involvement in a commitment to Europe characterizes the history of United States policy during the past half-century. It is a central theme of Mr Jenkins's lectures that the United States is repeating the ex-

perience of the UK at a fairly short interval of time.

For his own country, he poses the current question in the following terms:

The European political debate in Britain over the past twenty-five years has at last been about whether our relations with the countries of the Continent should be more akin to America's with continental European countries or to their own with each other.

The formulation is striking. Although clearly Mr Jenkins chose his terms partly, to clarify the matter for an American audience, it must be supposed that he chose them also partly to foreclose the debate. For it is manifestly impossible that Britain's relations with the European states should be similar to those of the United States since the latter are founded upon an immense economic superiority as well as a much greater geographical separation. The geographical separation of the United States is, of course, becoming relatively less, as is its economic superiority as the EEC begins to cohere and to prosper. But the latter factor reduces the case for British isolation to even deeper absurdity. If Britain has been unable in the past quarter of a century to sustain an American-style relationship with France, Germany and the rest as separate states, how could it possibly be sustained with a united western Europe? Clearly, Mr Jenkins is fully conscious of the implications, although he does not make them explicit. The rest of his argument follows inevitably from the initial formulation.

He shows easily in a few paragraphs how Britain failed to maintain either the role of a third great power or the "special relationship" with the United States. He points with conventional wisdom to the Anglo-French fiasco on the Suez Canal in 1956 as the moment of truth. He rightly indicates that the French reaction to that shock was different from the British. The French brought de Gaulle back to power, created an independent nuclear force, and launched "an intransigent pursuit of French independence with the Anglo-Saxons kept as much as possible at arm's length." But they also liquidated their last major colonial commitment, in Algeria, and set about imposing their own character on the movement towards European unity. The British were less successful. Mr Jenkins passes over the next few years in eloquent silence, and merely indicates the three attempts to adhere to the Treaty of Rome in 1961, 1967 and 1970. The vote in principle to accept the negotiated terms of accession on October 28, 1971, he describes as "probably the most dramatic and

significant since May 1940". He adds his own view "that a majority of public opinion will fairly rapidly accept what has been decided". The rest of the lecture explains why.

Mr Jenkins does not attempt to arrange the arguments for joining the EEC in order of cogency and importance. He does not even mention the argument based on defence, which, rather surprisingly, took first place in the present Government's White Paper last year. While acknowledging that "it has become something of a commonplace to say that the case for entry is 'political more than economic', he takes the view himself that the economic case is stronger than he thought it a few years ago—presumably before he became Chancellor of the Exchequer. In effect he rightly refuses to present the two as distinct cases: the economic case is political. It is that membership of the Community "will substantially enlarge our ability to influence our own destiny". He gives a forceful illustration of the argument from his own experience: at meetings of the Group of Ten, when the Six withdrew from time to time to concert their own collective policy, he and the United States Secretary of the Treasury were left almost alone to twiddle their thumbs for hours on end; but whereas his American colleague "like me, was a little impatient at the delay, but not worried, because he then thought that he could live with whatever decision emerged from the Six, I was by no means so

sure that I could do so". The moral is that remaining outside the Community does not mean independence: it means being at the mercy of more powerful forces without having the means to influence them in any way.

There are other arguments to be advanced, including the importance of Britain's potential influence on the Community's external policies from within. This should be recognized as a matter of supreme concern to the Commonwealth and other developing countries. If Britain stayed outside the Community, each Commonwealth country, in turn, would have to make its own arrangements separately with the Six (as many of them began to do after the first French veto). If Britain were within the Community, she would be the natural point of contact there for the Commonwealth countries. The former case, the links of the Commonwealth would grow weaker; the latter they would grow stronger. In other words, the choice is not between the Commonwealth and the Common Market, but between having both and having neither. As Mr Jenkins concludes, the issues at stake are therefore "very big ones for Britain, for the existing still substantial extent, for much of the rest of the world". But it needs no saying that Mr Jenkins is in no doubt which is the right way to resolve them.

He would give short shrift to those who argue that the central issue is sovereignty. If sovereignty means

the ultimate and unqualified power of decision (including the power to reverse decisions once taken), the issue is illusory, because the Treaty of Rome does not affect that power in any different manner from any other treaty. Notwithstanding article 240 (which says that "this Treaty shall be concluded for an unlimited period"), no power on earth could prevent the British Parliament from repudiating it.

That any parliament ever would choose is highly unlikely, as may be deduced from a careful reading of the two lectures which flank Mr Jenkins's centrepiece. Their theme is in effect the transitory character of national independence. In the first he shows how the United States moved from isolationism through the "special relationship" to global commitment. In the second he shows how the United States, repeating British experience over a much shorter time-span, moved from a quasi-imperialist attitude to a recognition of its mature role as *primus inter pares*. The argument is factually presented but its conclusion is unimpeachable. Naturally, no one wants to hurry the Americans back into isolationism by wounding criticism. But there is equally no doubt that they welcome sympathetic analysis of their shortcomings over the past decade or so. Mr Jenkins's manner of administering salubry but unappealing medicine manages to be both frank and statesmanlike.

## The need for an army

J. C. M. BAYNES:  
The Soldier in Modern Society  
227pp. Eyre Methuen. £3.95.

This book results from a year that J. C. M. Baynes, a regular Cameronian, spent at Edinburgh University as a Defence Fellow in 1968-69. It was unlucky in its moment of appearance: it was published ten days before the shootings in Londonderry, which so tarnished the army's public image; the book deserves a better fate. It begins by asking fundamental questions, about what armies are for, and goes on to a little recent history and to more prosaic questions, like how much they cost. It concentrates on the British army, but not exclusively. In the past fourteen years, the annual cost of the army has risen from under £500 million to almost £670 million, while its actual size has fallen from 426,000 to 172,000. "Even allowing", Colonel Baynes remarks, "for modern equipment, higher standards

of living, inflation, and a host of other factors, the message is clear: it will always be an expensive struggle to keep a good army going"; and he hopes "that we do not lose the will to do it".

He spends the middle of his book investigating problems of morale, efficiency, career structure, manpower, and cost; and brings some refreshing common sense to the perennial problem of recruiting. Recruiting has now fallen into the hands of Messrs Colman, Prentiss and Varley; no doubt an efficient firm, but

the present type of public relations is far too glib and unsatisfying, and has a tendency to annoy serving personnel. It is doubtful, in an age of general suspicion of the advertiser, whether it has much beneficial effect on the outside world either.

A sensible last chapter maintains that the country must avoid, at all costs, being "lured towards the hopeless morass" of a revived con-

scription, and advocates instead "a completely different matter—a system of one-year voluntary national service, which young men (and why not young women too?) could go through under army auspices for purposes of general social use."

"Indeed, it is vital to see that military science becomes much more widely based than its present preoccupation with weapon and vehicle technology allows."

People who are interested in how modern societies are cemented, and how they can survive, will find much worth considering in this book. Many everyday concepts are illuminated by the comments from an intelligent, articulate soldier. The author relies rather much on quotations of a few predecessors, and is sometimes over-mild; but the value of his book can only be denied by people so naïve that they think armies today are not needed at all.

comparisons between scientific and literary truth but the general framework of thought within which these comparisons can be made:

If it is right, then the "telling stories" of philosophy is no good for either the preliminary or the definitive stage of scientific theorizing. Professor Medawar sometimes asserts, and sometimes implies, that literature is not "about" anything at all; but at the same time constantly speaks as if it were either about the same reality as science, or about another, wider, but perfectly genuine reality.

The hypothetico-deductive scheme, in its positivistic form, seems to suggest that science is like a piece of fiction that has turned out to be a narration of actual happenings. Dr Holloway claims, surely rightly, that it is not like a piece of fiction at all; and adds the real nature of literature, that the best fiction "corresponds to reality" a good deal more completely than photographically exact

reportage of quotidian banalities. He does not, perhaps for lack of space, develop this point. But there is certainly much to be said for the contention that, while the aim of science is to analyse the causal structure of reality, that of literature is not to create an instance of "reality"—imagined, of course—in which at least some aspects of that structure are buried less deeply under trivialities than usual—though remaining unanalysed. "The cases of Anna and Vronsky, or Clarissa and Lovelace or Bickin and Ursula... bear on life more sharply than just to count as what might be true." The relevant criterion of "truth" is implicit in this phrase: "bear on life more sharply"; and it by no means implies that if the hypothesis "Anna and Vronsky" is true, that of Bickin and Ursula cannot be so also.

Among the philosophers of science, who accept that its fundamental method is based on some sort of hypothetico-deductive, rather than

purely inductive, scheme, there has been a movement, in post-Popperian times, which would see the criterion of scientific truth as not very far removed from the criterion of truth in literature just adumbrated. The best known, but by no means inexpressible, citadel of the thesis is I. S. Kuh's *The Structure of Scientific Revolutions*. The hypotheses which a scientist formulates and tests are, it is claimed, cast within a certain framework of thought, a paradigm; and the degree of their correspondence with reality is assessed within this context. But the paradigm may change, and then a new type of correspondence with reality will be looked for. Science on this view is like a painter trying to draw a decent picture of a siltier. There is no doubt that the siltier has definite qualities, and some likenesses are "truer" than others.

This is a mode of thought which has a traditional background almost

as long as that which leads to the positivist confidence that we can definitively state what "is indeed the case", thus Blake's, "Everything possible to be believed is an image of truth", and Whitehead, for whom reality consisted of "events", each of which "prehended" some relationship with every other in the universe. These are of course extreme examples, chosen to bolster the plausibility of Sir Peter's rejection of the whole notion. In the words of Dr Holloway:

Of "the concept of truthfulness which belongs essentially to the imaginative literature, that in which the deposits of a truth is not a falsehood but another truth", he says, with a touch of scorn which one cannot but detect not infrequently when literature and its values are at issue—*"We are back in Blake's *Urizen*."* But I do not believe that "real life" is *Urizen* at all.

"This is an argument from a professional in the field of literature, which some scientists may feel is not fully

met by Sir Peter's "Rejoinder", where he narrows the issue down to the question, "Did Coleridge really grasp the idea of a synergy between reason and imagination?" (In the sense that this synergy has been formulated by Popper and Medawar himself); and proceeds to the claim, which on the material presented to us, he triumphantly justifies, that "I do not wish to appear arrogant, but on this technical and rather specialised subject I am probably the better informed and the better read." The possibility which Sir Peter does not seem ready to contemplate is that Coleridge's poetry may have penetrated more deeply than Popper's logic into this so-simple-seeming thing, what "is indeed the case". And he might then have felt it desirable to attach some indication of direction to the final phrases of his book, an endorsement of Hobbes: "there can be no contentment but in proceeding." I agree. —Doch, aber wohin?

## Keeping the barbarians at bay

Civilization and Science, In Conflict or Collaboration?  
A Ciba Foundation Symposium  
227pp. Elsevier/N. Holland. £3.50.

Here we have physicists, biologists, doctors, economists, philosophers, historians, sociologists, a psychologist, and a politician discussing *Civilization and Science, In Conflict or Collaboration?* The contributors come from all corners of the world: England, France, the United States, Canada, Holland, Switzerland, South Africa, India, Japan and Venezuela. Almost all the contributions are interesting, the discussions are lively, and the symposium is an outstanding success. The most perceptive remarks are made by the politician, and the most salutary ones by the scholar from Venezuela, where there has been a history of almost no science and where there is still very little.

Those who seek to explain antisemitism by the failings of scientists have much in common with those who seek to explain antisemitism by the failings of Jews; when, obviously, no explanation of antisemitism is plausible which fails to take into account that it is a phenomenon characteristic of Christian civilizations. This does not mean, of course, that other cultures may not from time to time have treated Jews, or other minorities, badly; or that political factors like those now operating in the Middle East may not from time to time produce local waves of anti-Jewish feeling. But the specific unrelenting antagonism of a thousand years is something peculiar to

Christian communities. So if one seeks explanations for antisemitism, one must look not just at the Jew, but also at the psychological, religious and social structures of Christian communities. In this symposium it is Dr M. Roche, President of the National Council for Scientific and Technological Investigation in Venezuela, who points out that, similarly, antisemitism is not a worldwide movement, not even a movement of technologically advanced countries, but a phenomenon restricted to Western Europe, North America, and, to some extent, Japan. If one seeks explanations for antisemitism, one must look not just at scientists, who are much the same everywhere, but at the peculiarities of this limited group of societies, and one must attempt to see what it is that makes them peculiarly susceptible to this ailment.

The politician in the present gathering, Dr G. Pelletier, Federal Secretary of State in Canada, sees this at once. He wastes no time on trivial remarks about the characteristics of scientists. For him the heart of the problem lies in political structures and in the relationship between these structures and public opinion. His thesis is that the rate of technological change is now so fast that the public at large is unable to assimilate the new information or adapt to it. This imbalance between the production and assimilation of information results in a suspicious and antagonistic attitude towards those who generate the new information (scientists among others) and occasionally in outbursts of anti-rational violence.

The politicians who must ultimately make decisions about new information are generally no better equipped to assimilate it than the public at large; and the process of decision is made even more difficult as open societies by the fact that the only possible decisions are those that are acceptable to public opinion. For Dr Pelletier, then, the main defects lie in the present machinery by which political decisions on scientific matters are reached. Few who have had experience in advising government on science policy would dissent from this view.

On the other hand, what the economists say in this symposium is not helpful. To some extent this derives from the limited reliability of economics as a predictive science; but, in the case of H. D. Johnson, the basic uncertainty of economic projection is further compounded by an unusually high degree of methodological confusion. Professor Johnson argues that there is no correlation between the expenditure on science in any one country and the rate of economic growth; indeed, he claims that there is a negative correlation. It takes no great insight to appreciate that the rate of overall economic growth must be determined by a multitude of different factors; and it would be rather remarkable if, in a situation where other variables fluctuate, any one factor was found to have a close correlation with overall economic growth over a relatively short period of time. It is rather like saying that there is no correlation between the state of health of the population and the level of consumption of vitamin C. This is surely true, but the role of vitamin C in maintaining health immediately

becomes apparent if it is withdrawn. Fortunately, governments are motivated more by common sense than by economic theory, and no present government would dare try the experiment of withdrawing support for science in order to see whether it really was expendable.

In a way, however, history has done the experiment for us, and Dr Roche describes the result. He gives a fascinating account of the intellectual history of Spain where, in the sixteenth century, a conscious political decision was made to suppress free inquiry and enforce orthodoxy. Dr Roche does not seek a strict correlation between the suppression of scientific investigation and the economic and political decline of Spain; but he makes a strong case for the view that it was an important ingredient. His sketch of the texture of a society in which science and scientific modes of thought were not practised leaves one in no doubt that it is not the sort of society a sane man would advocate.

What has the philosopher to say? Stephen Toulmin argues that scientists are ultimately to blame for the current anti-science movement, not as Dr Pelletier believes, because they are primarily responsible for our present indigestible high rate of intellectual and technological change, but because they have in the past few decades exploited their special relationship with governments in a socially irresponsible way—irresponsible in the sense that they have not been answerable to the people whose lives have been affected by their actions. Professor Toulmin considers that the history of scientists in

government is another *trahison des cieux*. There is a small element of truth in this, but the analysis remains unacceptably superficial. There is, and always has been, an area of secrecy at the centre of government; and those who advocate an open society must always seek to limit or reduce this area. There are, of course, scientists who advise government under conditions of secrecy; but these same conditions apply to an enormous range of government advice in which scientists play no part. When scientists advise government they behave neither more nor less irresponsibly than economists, historians, or civil servants. It is no solution to social problems to advocate that scientists should have greater moral virtues or greater foresight than other educated men.

Sir Alan Bullock, with the long view of the historian, makes the important point that the current wave of "emotion" is not directed only against science; it is an anti-intellectual, even anti-cultural, movement, a form of primitivism that sweeps aside all attempts to solve problems by rational judgment. The anti-science voice is emotional and mystical; it shows fear and resentment, but little understanding. In a lecture on the nature of scientific revolutions given in Oxford last year, Jacques Merleau-Ponty asked whether there really was any alternative to scientific inquiry; his answer was: "Ou la science ou la barbarie."

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## Paper tigers

FRANK SWINNERTON:  
Nor All Thy Tears  
216pp. Hutchinson. £2.

Were the author not so obviously game for many more books, it would be tempting to say that his fifty-fourth, written as he approaches ninety, reminds one of Dr Johnson's comment on a woman's preaching: the wonder is that it's done at all. It would be hard to maintain that the standard of his best fiction, since despite its lively construction and wide range of characters, there is a certain lack of verisimilitude about much of their behaviour which, alas, depends largely on the way they talk and the attitudes they express—inescapably those of an earlier age.

The tough, twenty-five-year-old heiress to a Fleet Street empire, who is the focus of attention, is somewhat inclined to strike and glare and collapse, particularly after a glass or two of champagne with her oily legal adviser, in the manner of a Victorian heroine rather than the dogged and indeed pig-headed new broom who decides to live up to the old firm with more sex and sophistication.

The Laprak empire includes, it is true, a number of cosy old types (not only nice Rose editing the knitting-cookery syndicate women's magazine) who would seem strangers in today's Fleet Street jungle. The best-loved, and therefore most resented by young Vera after her dad's demise, is Simon Hardcastle, everyone's confidant and a tolerant

father-in-law to the aggressive editor of Laprak's weekly *World* whom Vera falls for. But even Morrison can't take being bullied by a woman, nor, perhaps, the fact that Simon is summarily sacked when his wife's illness necessitates his absence. After some other nasty snubs, the final collapse of Vera's morale is brought about by the prospect of her own absence "for a small operation", just at the point when Morrison is launching a *flyal* weekly. Hardcastle, with a bit of sympathy, achieves what no amount of loathing or defiance could have done—the educating of Vera.

Frank Swinnerton is never at a loss for incident; there are both office and domestic tensions interwoven here, and he has managed his two big scenes—the office dinner and a jolly discussion, on politics and such, at Simon's club—with considerable aplomb and expertise. He is a good deal less convincing on the interior monologues in which most of the women characters spend some time indulging: only with Simon's lonely, nice, dependent wife worrying about her daughters and her health does he create a wholly sympathetic figure. Those who actually know Fleet Street office life may raise an eyebrow or two, but they will nevertheless find much to entertain in the remarkably agile and fluent narrative that Mr Swinnerton invents; and it even looks, from the last page, as though he is full of ideas for a sequel, in which Vera becomes, as no woman in fact has yet done, the effective controller of a press empire.

## Myths of anti-climax

URSULA K. LE GUIN:  
The Lathe of Heaven  
184pp. Gollancz. £1.80.

JAMES BLISH:  
The Day After Judgement  
160pp. Faber. £1.60.

RICHARD COWPER:  
Kuldeak  
186pp. Gollancz. £1.80.

Science fiction seems to be going through an oddly reflective phase at the moment—no one really leaves Earth, and the quests are all backward-looking. Feeding Dante into the computer is the beginning of wisdom. Perhaps the conventions have multiplied to the point where it's necessary to erase the corners of the maps, and extend the boundaries of the unknown once more. At any rate, the grand colonizing confidence that annexed the galaxies has shrunk to a wary paradox, boxed inside someone's skull.

Dual time-tracks, alternative universes, Miss Le Guin said, 'Do you see a lot of old late-night TV shows?' This comes from *The Lathe of Heaven*, a consciously surprising tale about a man whose dreams change the world, and the mad scientist who tries to channel his powers into a crude utopian programme. The old theme of playing God is treated in a toned-down way, as though Ursula Le Guin finds its lurid archetypes rather embarrassing. When the arrogant dreams and the nightmares have run their course, they leave behind a hybrid, shabby world that's learnt humility. "Thank you very much," Orr said, and shook hands with his boss. The big green flipper was cool on his human hand. Human warmth, it is hoped, will keep the metaphysics at bay for a while.

But *The Lathe of Heaven* is not very convincing about the possibility of outrageous expansionist fantasies. When the genre gets self-conscious and reviews its own repertoire like this, you can see how much at its best it is a matter of surfaces—of the trite symmetries of "ideas", the verbal liveliness that comes from engineering clashes between alien conventions. The distinctive *frisson* happens when images or myths achieve just enough solidity to act as mental irritants. (Addicts, you notice, are not satisfied until they have gone off and told the plot to someone else, passed

it on, because like a joke it only acquires real existence in those moments when it jostles the contents of someone's consciousness and produces, perhaps, its minor modification there.) "Mature" (humble, realistic) science fiction, which is what Miss Le Guin wants, is a contradiction: the very banality of most of its motifs is the secret of its power to insert its grubby paradoxes into reality.

James Blish understands this very well, and therefore flourishes in the present chthonic environment: *The Day After Judgement* is a fitting footnote to his interminable rhymeless epic of a world lacking the sense of an ending. The tone is one of laconic hysteria, the cast start off in an understandably blank and peevish mood, having just survived what ought by rights to have been the end of the world. The black magic, far from being an escape, is merely one more mechanical, unreliable symbolic system in a world already plagued with useless knowledge.

The horrors are done with a brisk, clinical fascination, and every opportunity for bad jokes is exploited with tireless emphasis—the American High Command in bunkers deep under Denver, languishing with the Powers of Hell encamped in a Gothic fortress of red-hot iron in Death Valley, or Beelzebub's Legions pulling the wings off helpless bombers, or asbestos-clad Marines confronting snake-haired Furies. . . . In the general confusion about who's fighting who, wonderful confrontations occur, like that between Satan and "General D. Willis McKnight, a Yellow Peril fan since his boyhood reading of *The American Weekly* in Chicago". Of course, Mr Blish, like C. S. Lewis, is one of those people who find God's jokes endlessly funny. God's final joke, for the moment, is told in four pages of creaking but creditable Millionaire blank verse by Satan himself, crucified on a paradox. As the circles of discourse get narrower and the bathos accelerates, the author's pedantic relish grows. Mr Blish is thoroughly at home with dead or should be undead languages, and in the current crisis with conventions he still has plenty of room to manoeuvre.

The present obsession with failed Armageddons and learning to live

ROBERT JORDAN:  
Thanksgiving  
315pp. MacGibbon and Kee. £1.95.

One of the coster formulas for a novel of emotional suspense and moral dilemma is that which involves a group of people about to participate in some character-forming act of desperation. They make their entrance looking relatively placid, if resolved; the trick, though, is in bringing those lukewarm relationships to boiling point as they all get nearer the heat.

In this case, it's a group of young people: Chris and Elinor, a happy radical couple, Eric and Linda, who can't make up their minds whether they are a couple or not, and Peter—dour, efficient and apparently the odd man out—whose expertise in demolition makes him an essential member of the clan. They are brought together by a common contempt for American society in general and a loathing of the American Vietnam policy in particular, and plan to blow up a country club in an exclusive part of Long Island in order to bring its well-heeled residents to an understanding of the monstrous acts wrought in the name of the Silent Majority.

It's difficult to see quite why they should decide on the country club as a prime target, though it's no small aid to the plot that Elinor's father should have designed the place, and that her parents' beach house should be conveniently empty so that the principal characters can brood on the bloodier aspects of their in-

vented action and worry at their personality crises with the wane of the projected crime just down the road. And there's to be a considerable amount of brooding and worrying before the bombs go off. Elinor is made miserable by a change of plan which involves timing the bombs to go off when the club is full of people (at first they had intended to bomb the place when it was empty); after all, they are people she grew up with—a fact which seems to make all the difference for her. Chris is disturbed by Elinor's lack of resolve; he also decides that he ought to "stop undermining himself with half-baked Freudian-oriented assumptions". Eric is torn between Linda and a girl he left behind; Linda's expert in demolition makes him an essential member of the clan. They are brought together by a common contempt for American society in general and a loathing of the American Vietnam policy in particular, and plan to blow up a country club in an exclusive part of Long Island in order to bring its well-heeled residents to an understanding of the monstrous acts wrought in the name of the Silent Majority.

Something had caught him as he was falling to what would otherwise have been certain death at the bottom of the shaft. The machine! He heaved himself up on to his elbows and, as he did so, he heard a low growl in the darkness behind him. "What are you?", he whispered.

## Coitus uninterrupted

JENNY FABIAN:  
A Chemical Romance  
175pp. Talmey, Franklin. £1.75.

The heroine narrator is one Tiptree Gibson who, like Jenny Fabian herself, is the author of a book about a groupie which caused a tiny stir on its publication not long ago. In *A Chemical Romance* Miss Gibson moves through a world of journalists, agents, film directors, musicians and other supposedly glamorous people, dazed by drugs, astrology, meditation and mind-blowing. Instead of a narrative there are a succession of cursory accounts of meetings (mostly sexual) with various people (mostly male) in various countries. Characterization is non-existent; people have names, professions and

"I am Dog", came the gruff response. It was a word from the jargon that meant next to nothing to Mel. "Are you a Factor?" he demanded. "What is factor, Minister?" That answered that one.

Dog is superseded later by control of grander and more dangerous machines, and finally the computer itself, but this moment more than any other in the book encapsulates the blumescence of the playground waiting on the other side of the computerized nightmare. For "Dog" read "Car", or better "Cadillac" ("a word out of the sagas that meant next to nothing. . ."); at its most unselfconscious moments science fiction focuses unerringly on our shamefaced affection for gadgets, our guilt about crude cultural colonizing.

In a recent (vintage) episode of *Star Trek* on television, Captain Kirk and his men encountered the God Apollo; he demands his old due of human worship, but they greet his mellow, wailing lightnings with their own matching arrogance. "See if you can locate his power source. . . ." Tender or tough, science fiction is capable of a dreadful innocence, an utter truthlessness that shames the realists. If it is in for a period of self-examination, one can only hope it does not end up merely respectable.

clothes, the last of which are soon removed to reveal the sexual organs. If Miss Fabian's aim is to make coitus sound completely uninteresting, then she has pulled off this tricky feat magnificently. The mechanics of the sexual act are described in detail but without feeling. Far from being the hard-boiled stuff it purports to be, the world of this book belongs strictly to the fiction of large circulation women's magazines: "his eyes twinkled blue and his henna'd hair glowed like a halo round his head. He swayed his lean body across the gang-plank. . . ." The writing is atrocious, the observation is feeble and there is not a glimmer of wit—in short the book has nothing to recommend it. Readers who are extremely easily shocked, however, may possibly find that it holds their attention.

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Even then, of course, Leo Tolstoy was not so other men. In addition to his genius there was his rank. Ilya's

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## Tolstoy at home

Ilya Tolstoy:  
Tolstoy, My Father  
Translated by Ann Dunnigan  
322pp. Peter Owen. £3.50.

Of Tolstoy's thirteen children, Ilya, his second son, was one of the most attractive. He is a point of sweetness and light in what all too many have turned into a dark and bitter story. In some ways he was an ineffectual man. His reminiscences of his father show that he must have been a rather lovable one.

Ilya Tolstoy was born in 1866. His *Reminiscences* of Leo Tolstoy, who died in 1910, were published in English and French in 1914. A second edition appeared in Moscow in 1933, the year he himself died. It is this edition Ann Dunnigan has translated. Ilya writes of being "over seventy, living in a foreign country far from all that is native to me". Henri Troyat has told us that Ilya emigrated to America, and worked in the motion-picture industry there, mainly on the film of *Resurrection*. In fact, Ilya was only sixty-seven when he died.

Although his book first came out soon after his father's death, it eschewed sensationalism. It is a sequential story of his childhood, adolescence, maturity, and of his parents' tragedy. He writes of "childhood memories—a startlement in infancy in which there gleams an infinitude of golden points". He depicts what it was like to be an impressionable small boy in the Russian countryside a hundred years ago, the son of a genius in the days before his father's "conversion", and before Yasunya Polyana became Pandemonium. So much has been written about the unhappy closing phase of Tolstoy's life that it is good to have these relatively calmer days recalled.

Even then, of course, Leo Tolstoy was not so other men. In addition to his genius there was his rank. Ilya's

emphasis on the fact that his father was a nobleman and a pacifist is necessary to an adequate understanding of the life he led.

One of my parents' main concern during these early years was to shield us from outside influences. The world was divided into two parts: one composed of ourselves and the other of everyone else. We were special people, and the others were not our equals. . . . It was mostly *maman*, of course, who was guilty of entertaining such notions, but *papa*, too, jealously guarded us from association with the village children. He was responsible to a considerable degree for the groundless arrogance and self-esteem that such an upbringing inculcated in us, and from which I found it so hard to free myself.

Ilya's memories of life within the household provide a succession of pleasant pictures—Tolstoy illustrating Jules Verne for his children, out riding and courting, playing the piano while Aunt Tanya sang. There are vivid sketches of distinguished visitors, such as Pet, Strakhov, and Gay. Turgenev is drawn more fully. Tolstoy and Turgenev were inherently incompatible. Ilya relates a delightful episode of the two men quarrelling over whether Turgenev had shot or missed a woodcock, and of how honour was saved for both of them. When he comes to Tolstoy's crisis, and the final tragedy, Ilya condemns no one except Cherkov, and him less severely than others have done.

Of Tolstoy himself, one of the most complicated of all characters, his son writes with compassionate understanding: "I never pretended to be a follower of my father, though I always believed in him." He has a sensitively written chapter on Tolstoy's relations with Aunt Maisha. He points her moving letter describing Tolstoy's last visit to her in the convent. Tolstoy's sister knew—as every reader of Bulgakov's diary of *The Last Year of Leo Tolstoy*, also translated by Ann Dunnigan, must have realized—that Tolstoy's final flight was just to solitude.

## Matriarch of the Kennedys

GAIL CAMERON:  
Rose: A Biography of Rose Fitzgerald Kennedy  
225pp. Michael Joseph. £2.60.

The Kennedys have been good at managing their publicity. Not until repeated tragedy and ignominy removed the family from the front rank of politics, if only temporarily, were there many unvarnished "inside stories" in common currency. And we have had to wait until Mrs Joseph Kennedy is over eighty to have a candid portrait from the life of the matriarch who was the only mother in American history to see three of her sons elected to the Senate and one become President of the United States. Gail Cameron has been a *Life* reporter, and her biography has the weaknesses as well as the merits of that journal's tradition, but she establishes beyond doubt that it was the Roman matron rather than her more spectacular husband who was the true inspiration of that extraordinary trailing stable and political forcing house.

Britain first became aware of Mrs Kennedy just before the Second World War when she arrived in London as the beautiful and youthful wife of an American Ambassador on whose terms the only charitable comment that can be made is that his handsome family of four sons and five daughters at once earned the goodwill of the British public. She was then forty-seven and had been exposed to politics since the age of five, as the daughter of the legendary "Honey Fitz", John Fitzgerald, the first Catholic Mayor of Boston. "Stand up straight and cooperate with the photographers. They have a job to do, too," he told the eldest daughter

who, unlike her brothers, doted on her father without being intimidated by him.

That apprenticeship, linked to an intelligence which enabled her to qualify for Wellesley at the age of sixteen (though her father decided against sending her there), was an excellent preparation for her marriage, against her father's wishes, to the brashly energetic and ambitious Joe Kennedy. According to Mrs Cameron, Rose Kennedy advised her husband to omit from his notorious Trafalgar Day speech the claim that democracies and dictatorships were compatible, not from any ideological convictions but for essentially political reasons. "You will have to produce concrete suggestions to bring home your point," she told him. "And you know perfectly well that you will find yourself discussing issues which a diplomat should not raise."

Since the making of his millions took her husband away from home at least as much as Boston politics had taken her father, Rose Kennedy had always assumed the day-to-day responsibility of the strenuous upbringing of their children. They were fed politics and current affairs virtuously from the time they shed their milk teeth; they were prodded to do better at school; they were given reading lists and examined on them and they were never allowed to discuss trivialities at table. It might be argued, taking the pervasive religious teaching into account, that there was nothing in all this which was foreign to many a Victorian upbringing, and that the regime was unusual only because it was unachronistic. But the ethos was not Victorian. All that hard driving was in pursuit not of excellence but of success. Kennedys

had to head every list: they were urged to compete even against each other. The wonder was that there seem to have been no drop-outs.

Where did all that relentlessness come from? It seems clear from the book that Mrs Kennedy possessed it herself, and was not simply implementing the policy of a husband who could appreciate achievement only in its most obvious forms. Probably one need look no further than her faith and her education. She is a sincerely, even ardently religious woman; the discipline and order of the Sacred Heart Convent at Blumenthal in Prussia was superimposed on her fundamentalist Irish Catholicism. Hence the insistence on observances, and the tendency, to this day, of adding the letters EDM (Enfant de Marie), to some of her letters; hence also the constant thought for others and the unexampled courage and self-control with which she has met her successive bereavements. But she is also Honey Fitz's daughter, and she had the importance of getting into print early.

Two almost throwaway items about Joe Kennedy strike chill even at this remove. If Miss Cameron is to be believed when she says that one of his primary motives in preaching isolationism was a deep-seated fear for his sons' lives ("he did not think he could live the eventuality of a lost son"), he must have been bleedsomely far gone in megalomania while he was representing his country abroad. And when his son Joseph failed to get into the Yale game, and so win his football letter at Harvard, his father "stormed on the field and publicly berated and screamed at the coach". One can only wonder that a man capable of such behaviour should have been appointed to any considerable public office.

## Jane Austen in private

JANE AIKEN HODGE:  
The Double Life of Jane Austen  
252pp. Hodder and Stoughton. £3.

For all its rather catchpenny title, this is a serious and very competent addition to "the literature of the subject"—the first full-length critical biography since Elizabeth Jenkins's 1958 volume. The reason, apparently, for the employment of a title so questionable is that Jane Aiken Hodge is determined to demolish the belief—which one would suppose few people to hold nowadays—that Jane Austen resembled to any noticeable extent the saintly aunt-figure that is conjured up by the early memorials of the Austen family. Her point, in other words, is that Jane's life was double in the sense that it was passed on two quite separate planes—that of the Austen family-circle, and that of the private world of the novels which she shared only with Cassandra. And the way that is here chosen to exhibit this alleged duality is by conducting us upon a remorselessly thorough tour through the whole of the events that are recorded in the *Letters*—a process which, to tell the truth, comes in the end to something like being forced to sit through a non-stop, twenty-four-hour omnibus edition of *The Archers*. True it is, of course, that the Austens were a vast, interesting and united family, but it is equally true that the recording of the exact movements of each of them in strictly chronological order (to say nothing of such other peripheral old friends as the Digweeds and the Biggs Withers of Manydown) cannot but result, eventually, in a state little short of total stupefaction; and this is a pity, because Mrs Hodge has much to tell us on all manner of other things, and Jane's *Letters*, used in discretion, are uncommonly revealing of the sharper side of her personality:

possibly do, to make one cease to abuse her. Single women have a dreadful propensity for being poor—which is one very strong argument in favour of matrimony. Dearest Henry! [her brother] What a turn he has for being ill! [Of Mrs Deedes's confinement] I hope she will get the better of this Marfanese; and then I would recommend to her and Mr D. the simple regimen of separate rooms. And so forth: the paw extends, and the claws are not retracted; nothing could really less resemble the sanctified presentment of kind Aunt Jane.

Mrs Hodge, of course, makes the obvious point: that what Jane wrote to Cassandra was written for the latter's eye alone and that no one ever dreamt of the letters becoming public property. Or, rather, no one but Cassandra herself who, as we are only too sadly aware, grew so regrettably busy with the scissors and the fire during her later years. It would, however, be doing grave injustice to this careful study to leave the impression that it contains nothing but a continuous paraphrase of the *Letters*, for it is also full of keen insights on a large number of other topics. On, for example, the glorious high spirits of the juvenilia: on the fact that Henry Tilney in *Northingham* is, of all Jane's male characters, the one whose cast of mind most resembles her own; on the mood of high moral seriousness which informs *Mansfield Park*; here described perhaps a little excessively as "the author's *Pilgrim's Progress*"; on the curious robustness and even savagery of *Sanditon* in contrast with the belated romanticism of its immediate predecessor, *Persuasion*. There is also a good deal about the actual mechanics of the publishing of the novels, from which we learn, among other interesting particulars, that the total sum they netted for Jane during her lifetime was £371 16s.

All things considered, then, Mrs Hodge must be credited with having done a good job. She has no new facts, because there are no new facts. It is, indeed, interesting to compare her book in this respect

with R. W. Chapman's wonderful little volume of 1948, *Jane Austen: Facts and Problems*, in which, as it were, the skeleton of this new offering already lies concealed. Mrs Hodge has added flesh to the bones, perhaps at times an excessive quantity of it, but it is surely ungracious to cavil at a work upon which such loving care has been lavished, which is so blessedly free from errors and stupidities, and which is bound to give an immense amount of pleasure and refreshment.

## Pro-Borgia

FREDERICK ROLFE:  
Letters to James Walsli  
Edited by Donald Weeks  
58pp. Bertram Roin. £4.

Here, in a limited edition of 500 numbered copies, are fifteen letters from Frederick Rolfe to Dr James J. Walsh of New York City, a Roman Catholic who, like Rolfe, had been adjudged to have no vocation for holy orders. The correspondence began in 1903 as a result of Rolfe's reading in *The New York Saturday Review* a defence of the Borgia pope, Alexander VI, a subject dear to the heart of Baron Corvo whose *Chronicles of the House of Borgia* had been so savagely by his publisher Grant Richards that he tried in vain to have his name deleted from the volume.

Began in a spirit of alliance against the Church's tradition of Alexander VI, the correspondence continued in the Corvine pattern with sallies, pyrotechnical displays of erudition (which must surely tally the source of patronage) and tryings-out of passages that became incorporated in *Hadrian the Seventh*, in ways exemplified by Donald Weeks in his careful notes. It ended blazingly in 1911 (may xliij):

What with your allegiance to the free-masonic Grandmaster of Sanedivina Sophia who employs his mother to attack my Mother on his behalf! & your information for that baneful fire-insurance agent R. H. Benson, I can quite understand that you prefer enunciation in a sulky silence.



THEORIES OF PERCEPTION—of what happens to bridge the extraordinary gap between sensory stimulation and our experience of external objects—have a long history, of astonishing variety. Speculation goes back to the beginning of recorded philosophy—and scientific work on perception escapes the philosophical questions and dilemmas only when it narrows inquiry by over-blanking specialization. How we see remains essentially mysterious after a century of intensive experiment, on animals and on men, by such a variety of scientists that aims and communication can be lost between them. An adequate theory should include not only the favoured sense of sight but also: hearing, touch, hot and cold, taste, smell, balance and position of the limbs, the various kinds of pain; and tickle, from its irritation to sensory pleasure and delicious laugh-making.

To the philosopher and the experimental scientist, it is how we see that offers the most exciting questions, with hearing the runner-up, for sight dominates by its giving us immediate external reality. By simply looking we seem to understand what we see. This close association between seeing and knowing makes the sense of vision attractive not only to philosophers but also to experimental psychologists and physiologists who hope to discover in the brain mechanisms serving our experience and knowledge of the world. By coming to understand how we see might we not at one stroke also discover how we think, remember, formulate hypotheses, appreciate beauty—and most mysteriously—accept pictures and words as symbols, conveying not merely present reality but other realities distant in space and time? And if seeing involves all this, surely the net of understanding must be cast wide.

Perceptual theories form a spectrum—from *passive* to *active* theories. Passive theories suppose that perception is essentially a passive process, conveying selected aspects of objects quite directly, as though the eyes and brain are undistorting windows. The baby, it is supposed, comes to see not by using cues and hints to infer the world of objects from sensory data but by selecting useful features of objects available to it directly, without effort, information processing or inference. Active theories, taking a very different view, suppose that perceptions are constructed, by complex brain processes, from fleeting fragmentary scraps of data signalled by the senses and drawn from the brain's memory banks—themselves constructions from snippets from the past. On this view, normal everyday perceptions are not selections of reality but are rather imaginative constructions—fictions—based (as indeed is science fiction) also more on the stored past than on the present. On this view all perceptions are essentially fictions; fictions based on past experience selected by present sensory data. Here we should not equate "fiction" with "false". Even the most functional fiction as written is very largely true, or we would not understand it. Fictional characters in novels generally have the right number of heads, noses and even many of the opinions of people we know. Science fiction characters may have green hair and an exoskeleton—but this is a novelty not a mere reshuffling of the pack of our experiences? It is doubtful if a new "card", suddenly introduced, could be meaningfully described or seen.

The passive paradigm may, at least initially, seem more acceptable as a scientific theory. It fits well with—and indeed essentially is—the familiar "stimulus/response" notion in which behaviour is described as controlled directly by prevailing conditions. This is also familiar in engineering: in most devices input directly controls output; and much emphasis is put on measuring input and output, and relating them by transfer functions or something equivalent, to describe the system. B. F. Skinner in his behaviourist claims to do much the same—to give at least a statistical account of the relationship between stimulus (input) and behaviour (output) in animals and men. An engineer would go on to suggest "models", of what the internal mechanisms might be,

# Seeing as thinking: an active theory of perception

BY RICHARD GREGORY

which transform inputs into the outputs. But, rather curiously, Skinner does not attempt to make this further step, and apparently distrusts it. He says remarkably little about brains, and at times denies memory and indeed all internal processes. His description is purely in terms of input-output relations, with emphasis on how the probability of certain kinds of behaviour is changed by environmental changes, especially "reinforcers".

Skinner himself has little interest specifically in perception, but passive theories of perception are in many ways similar. They have the same initial scientific credibility, but are (I believe) essentially incorrect. They deny that perception is an active combining of features stored from the past, building and selecting hypotheses of what is indicated by sensory data. On the active account we regard perceptions as essentially fictional. Though generally predictive, and so essentially correct, cognitive fictions may be wrong to drive us into error. On this active view, both veridical (correct-predictive) and illusory (false-predictive) perceptions, are equally fictions. To perceive is to read the present in terms of the past to predict and control the future. This account is very different from the passive story implied by Skinner's behaviourism, and most ably propounded by James J. Gibson and Eleanor Gibson (whose article is on page 71).

Why should one want to push all this stuff about "brain fictions" (as I do) when stimuli and responses are so easily observed, and so like the usual stuff of science? The essential reason is (I believe) very easily demonstrated, by common observation and by experiment. Current sensory data (or stimuli) are simply not adequate directly to control behaviour in familiar situations. Behaviour may continue through quite long gaps in sensory data, and remain appropriate though there is no sensory input. But how can "output" be controlled by "input" when there is no input? The fact is that sensory inputs are not continuously required or available, and so we cannot be dealing with a pure input-output system. Further, when we consider any common action, such as placing a book on a table (a favourite example of philosophers) we cannot test from retinal images the table's solidity and general book-supporting capabilities. In engineering terminology, we cannot monitor directly the most important characteristics of objects which must be known for behaviour to be appropriate. This implies that these characteristics are inferred from the past. The other highly suggestive—indeed dominating—fact is that perception is predictive. In skills, there may be zero delay between sensory input and behaviour. But how could there be zero delay, except by acting upon a predictive hypothesis? (Surely J. J. Gibson's description of perception as "selections from the available" "ambient array" will not do: it would have to be a selection from a *future* "ambient array" for the predictive account to work; but this evokes a metaphysics we cannot welcome. The significance of prediction in perception has been for too long almost totally ignored.)

It is the fact that behaviour does not need continuous, directly appropriate sensory data that forces upon us the notion of inference from available sensory and brain-stored

data. This account is very much in the tradition of the polymath nineteenth-century physicist and physiologist, Hermann von Helmholtz, who described perceptions as "unconscious inferences". This notion was unpalatable to later generations of psychologists, who were over-influenced by philosophers in their role—sometimes useful, but in this case disastrous—of guardians of semantic inertia: objecting to inference without consciousness. But with further data on animal perception, and computers capable of inference, this essentially semantic inhibition has gone. Curiously, though, the kinds of inference required for perception are remarkably difficult to compute.

The recent engineering-science of Machine Intelligence is finding heavy weather designing computer programs to identify objects from television camera pictures. The reason seems to be apart from the very large and fast computers required to perform the operations serially that the computer requires a vast amount of stored data of common object properties, with ready and rapid access. It requires, in short, what we have called "fictions" to augment and make use of data monitored from the world by its camera eye, and—in machines dealing with real objects—its touch probes. In short: we may think of perception as an engineering problem, but it is a highly atypical problem even for advanced computer engineering, and it requires a special philosophy which is unfamiliar in science, because only brains and to a limited extent computers are cognitive.

The notion that interpreting objects from patterns is a "passive" business must strike the computer programmer engaged on this problem. Machine Intelligence, as an extremely unfunny joke. His problem is to devise active programs adequate even for perceptual problems solved by simple creatures, long before man came on the scene. The notion of perceptions as predictive hypotheses going beyond available data is alien and suspect to many physiologists. Cognitive concepts appear unnecessary, even metaphysical—to be explained away by physiological data. Certainly more physiological data are needed; but will they tell us by what mechanisms the brain's hypotheses are mediated, or will the "brain fiction" notion drop out as unnecessary? Prediction is dangerous, but there are surely strong reasons for believing cognitive concepts to be necessary. In the first place, it is not surprising that special concepts should be required for brain research, because the brain is unique, in nature, as an information handling system (or at least it is on an active theory of brain function.) With the development of computers, we now have other information handling systems to consider: it is interesting to note that to describe computers, "software" concepts are adopted similar to cognitive concepts. More basically, what are essentially cognitive concepts are very familiar in all the sciences, but hidden under a different guise—the *method of science*. Generalizations and hypotheses are vital to organized science, for the same reasons they are essential for brains handling data in terms of external objects. Science is itself not "passive" in our sense, but puts up hypotheses for testing, and acts on

hypotheses rather than directly on available data. Scientific observations have little or no power without related generalizations and hypotheses. Cognitive concepts are surely not alien to science, when seen as the brain's (relatively crude) strategies for discovering the very much the limited data—which is very much the basic problem of all science. Scientific observations without hypotheses are surely as powerless as an eye without a brain's ability to relate data to possible realities—effectively blind.

The full power of human brain fiction is apparent when we consider how little current sensory information is needed, or is available, in typical situations. Here we do not need initially to consider particular experiments—and indeed the intentional simplifications and restrictions of the laboratory environment can make the point less obvious—that behaviour is generally appropriate to features of the world which are not continually available to the senses. When you trust

your weight to the floor, or your mouth to the spoonful of food, you have not monitored the ground's strength or the food's palatability; you have acted on trust, on the basis of the past. You have acted according to probabilities based on generalizations from past events—and neither generalization nor probabilities exist, except in your brain, for they are not properties of the world. Now suppose that you gave up using informed guesses and demanded continuously, direct selections of reality. How would you get on? Would you not avoid mistakes—never fall through rotten floors—never be misled by going beyond the evidence? Yes, indeed, if there were sufficient evidence available, but the fact is that there is frequently no possibility, or time, for testing hypotheses or food. They must be taken on trust—trust based on the past as stored in the brain.

We have arrived at questions which may be answered by experiment. We can measure performance, in the partial or total absence of sensory data, and establish whether and how far perception continues to drive or walk, or perform laboratory eye-hand tracking experiments, through gaps in sensory data; and not merely initially, for we can make decisions and change our actions appropriately during data gaps. We must then be relying on internal data. This requires an internal fiction of the world—which in unusual situations may be false. If the situation is unfamiliar, or changes in unpredictable ways, then we should expect systematic errors, generated by false predictions. Errors and illusions thus have great importance for active theorists: they become obsessively used tools for discovering the underlying assumptions and strategies of the perceptual

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## Descending on England

RUPERT C. JARVIS

Collected Papers on the Jacobite Rising  
Vol 1: 294pp. Vol 2: 342pp.  
Manchester University Press. £3.60 each.

Forty-four years ago Namier advocated the study of the "ordinary men" in the background of history, the "dark, dumb, nameless crowd". In a collection of papers of which he would warmly approve, Rupert Jarvis reverses those epithets. "What has been so much neglected in 'history' he observes, 'is not only 'what people did', but what ordinary people did locally.' That neglect is here brilliantly repaired, with industrious research, skilful analysis, neat writing, a dry humour, and the imaginative touch that brings the anonymous crowd to vivid life.

The collection's title makes it sound more comprehensive than it actually is. It deals mostly with the 1745 rising, with some backward glances to 1715 but nothing on 1719, and, apart from two valuable essays on Cope's forces, studies the repercussions of the Jacobite attempt only on England, mainly north-western England. Deliberately it does not re-tell the well-known story, in whole or in part, but by examination of local records, the acts and accounts of local lieutenants, justices of the peace, parish constables, postmasters and revenue officers, it is endlessly illuminating on the Highland army's march to and from Derby, and corrects many deep-rooted errors.

It is now clear, for example, that while espionage played only a small part on both sides and military intelligence was poor, a continuous stream of fairly reliable news of the Highland army's strength and progress reached London through the postmasters. Curiously enough Sir Everard Fawcener, Cumberland's military secretary, was able to make good use of the system since he happened, in a casual eighteenth-century way, also to be postmaster general.

Mr Jarvis gives also a fascinating

exposition of how the Jacobite army financed its march. He notes the frequency of newspaper reports "that broadly speaking the conduct of the invaders, surprisingly, was exemplary". The postmaster of Appleby reported: "They pay for everything and are very civil." This they could well do because, in England as in Scotland, in 1745 as in 1715, they simply collected the public moneys, "an obvious exercise of precisely those powers of sovereignty that a pretender claims". Since the customs, excise and postal officials who were skinned of the money they had legally collected could all produce receipts for what they had had to surrender, the loss fell to the Crown.

Undoubtedly this helps to explain the apathy of civilian resistance to the invasion of England, but there are different reasons for the ineffectiveness of the militia. Lord lieutenants and deputy lieutenants "felt themselves impeded by certain not fully understood legal difficulties", mostly attributable to Parliament's resentment, two generations old, of the Crown's control of military forces. Legal uncertainty regarding how the militia might be called out could not be rectified while Parliament was up and the King in Hanover, and the Bill ultimately rushed through was not satisfactory either. It was even doubtful how the militia could be paid.

Then what were they to do? Wade thought their only use would be as "small parties who may fire from every hedge and keep the rebels from separating from their main body". Others thought they should disperse in case their arms should fall into enemy hands. Here and there the legal difficulty was got round by authorizing volunteer regiments.

In these essays countless formerly useless people take on life and character. Outstanding examples are Thomas Pattinson, postmaster of Carlisle, deputy mayor and landlord of the Bush Inn, and William Fowden, a Manchester constable accused of collaborating with the rebels

but proved by many witnesses to have acted only under duress. Other essays examine the precautions—not the panic of the Jacobite legend—in London and (with meticulous bibliographical research) the vigorous patriotic pamphleteering of Henry Fielding.

The only regret is that Mr Jarvis did not, with the exceptions noted, extend his range to cover Scotland. Apart from the state papers relating to Scotland he has consulted Scottish sources hardly at all. This neglect explains some small errors. It was not Cumberland's decision that caused Fort William, alone of the posts of "the Chain" through the Great Glen, to be so firmly held. Long before he reached Scotland the governor had been ordered to hold it "to the last extremity", and measures were taken for its reinforcement and provisioning. If Mr Jarvis cannot find any reference to the part taken in it by the port of Liverpool, this is not because such references are not in print. And the assertion, made twice, that the Duke of Argyll "went off to leave Scotland to her fate" is the one instance in which Mr Jarvis accepts without query a partisan assertion of the time; it happens to be the reverse of the truth. Argyll was, in fact extremely active very early on to suppress the rising. But his hands were tied like the English lord lieutenants, and even more so both by the Disarming Acts and the political hostility year, with its succession of public religious celebrations, with the second half, when there was a dearth of them. He goes on to trace the triumph of the secular over the ritualistic, and the spread of secular occasions, such as the October Fair and the mayoral inauguration, into the second half of the year. Peter Clark uses the rich biographical information contained in the ecclesiastical court deposition books for Canterbury diocese in order to indicate the amount of migration within and into East Kent—and particularly Canterbury, Maidstone and Faversham—between 1580 and 1640. Most of the migrants were, as one would expect, young and short-distance travellers; but a scatter came from farther afield, including the North of England. Some attention is paid to the class background of these people and the means whereby they learnt about local employment possibilities. It is a pity, perhaps, that Mr Clark did not raise some of the possible implications of longer-

distance migration. Presumably this brought with it some awareness in the South-East of conditions in distant parts of the country; and presumably, too, the Cornishmen, Lancastrians and Yorkshiremen who had found a living in East Kent did not entirely lose contact with the families they had left behind. But how was it maintained?

Paul Slack's contribution brings out very clearly the devastating effects of bad harvests and pestilence upon the prosperity of a place like Salisbury, and the initiative taken by the authorities there in grappling with the problems of poverty which became almost overwhelming at such times. The corporation set up a workhouse, ran a brewhouse to divert some of the town's plentiful profits from drink to the support of the hard-pressed poor rate, and created a municipal storehouse at which the poor could secure the necessities of life at cost price by means of special tokens. The same careful use of source material is shown by M. J. Power in his piecing-together of a surprisingly full account of housing development and housing standards in East London in the seventeenth century. Maps, hearth tax returns and inventories are very skilfully used, together with deeds, surveys and other papers, hunted down at various London repositories and even at the offices of an insurance company.

The use here of records to be faithful in, and relating to, particular places, gives one no wonder to what extent urban history is still a definable subject in its own right. There are, it is true, some contributions here—D. M. Palliser on the trade guilds of York, A. M. Johnson on politics in Chester between 1640 and 1662, and Penelope Corfield on Norwich in the late seventeenth century—which are of a more traditional sort and readily recognizable as urban history. But, for the rest, the intention has clearly been to use urban records to make significant national observations. This point is best exemplified by D. W. Jones's splendid essay on London merchants and the crisis of the 1690s which discusses, inter alia, balance of payments problems and the significance of the changing fortunes of the Iberian wine trade: all most ably done, but is it any longer urban history? Is a new generation pointing the subject in a promising direction, but in a direction in which it becomes merged—and even submerged—in the broader realms of history?

Communal leaders were intellectuals, medical students, sons of professors at the Collège de France, like the hateful Rigault, plus a certain number of failed students. These were the people morally responsible for the shooting of Mgr Darboy, a moderate, liberal Gallican.

The next essay, "Some British reactions to the Commune", by F. B. Smith, is much the best contribution to this little-known subject to have appeared in the past year. John Morley took a racist view of the whole episode, being at one with "many of his countrymen, who regarded the Celts, the French, the Welsh and the Scots, let alone the Irish, as lesser breeds ruled by their emotions, incapable of submitting to the rule of law". The *Observer* and *The Times* put it all down to alcohol. More favourable interpretations were expressed by the Communist Oxford lawyer, Frederic Harrison, and by E. E. Bowen, a master at Harrow, who had been in Paris during March-April 1871 and had been impressed by the good order, moral fervour and enthusiasm of the supporters of the Commune. The suppression of brothels won considerable acclaim in North Country circles. The English working class seems to have been largely indifferent to the Commune, though some chapel elements were enthusiastic about the attacks on churches and convents; the Commune must have some good in it if it set about Popery. But probably the most important effect of the Commune on England was to have killed republican sentiment there.

Eugene Kamenka himself is concerned with the most recent myth of the Commune: that prompted by the Chinese press since 1966.

## Urban models

PETER CLARK and PAUL SLACK

Crisis and Order in English Towns 1500-1700  
364pp. Routledge and Kegan Paul. £4.75.

This resourceful series of essays is the product of a new generation of historians who write with an infectious enthusiasm, reveal considerable zeal for research and study a genuine concern for their subject. Their writing reflects modern ideas and attitudes, including greater emphasis on numerical and a commendable desire to tune in to neighbouring disciplines. In the process some strange jargon appears; but fortunately, such phrases as "eschewing the multiplex relationships of kin-oriented society" interrupt only rarely the otherwise smooth flow of intelligible English.

The writers focus upon London and six leading provincial towns (Norwich—the second town in the kingdom by 1700—York, Chester, Coventry, Salisbury and Canterbury) and several of them use the local records to open up a theme of much more than local interest. Charles Phythian-Adams, for instance, makes use of the Coventry archives to study the role of ceremonial in the lives of its citizens in pre-Reformation times and contrasts the first half of the calendar year, with its succession of public religious celebrations, with the second half, when there was a dearth of them. He goes on to trace the triumph of the secular over the ritualistic, and the spread of secular occasions, such as the October Fair and the mayoral inauguration, into the second half of the year. Peter Clark uses the rich biographical information contained in the ecclesiastical court deposition books for Canterbury diocese in order to indicate the amount of migration within and into East Kent—and particularly Canterbury, Maidstone and Faversham—between 1580 and 1640. Most of the migrants were, as one would expect, young and short-distance travellers; but a scatter came from farther afield, including the North of England. Some attention is paid to the class background of these people and the means whereby they learnt about local employment possibilities. It is a pity, perhaps, that Mr Clark did not raise some of the possible implications of longer-

distance migration. Presumably this brought with it some awareness in the South-East of conditions in distant parts of the country; and presumably, too, the Cornishmen, Lancastrians and Yorkshiremen who had found a living in East Kent did not entirely lose contact with the families they had left behind. But how was it maintained?

## Party pieces

I. A. W. GUNN

Factions No More  
275pp. Cass. £4.50.

I. A. W. Gunn has compiled a valuable anthology, or rather sourcebook, of party literature ranging from Halifax to Charles James Fox, taking in on its way many obscure scribes whose words, like the deposit of the coral insect, has built up the peculiar opposing reefs we know as the party system. Much of this material is of the kind that can be found only by patient and rigorous combing of journals and ephemeral literature, and this Professor Gunn has clearly done.

A collection which has the purpose of illustrating the development of something which has Professor Gunn says is "singularly bereft of intellectual parentage... scarcely an idea at all", is bound to encounter difficulties. It is in the nature of party writers to clothe with respectable doctrine the ambitions of those on whose behalf they are writing. They are, in fact, no more on oath than the writers of epitaphs. There is a certain refreshing simplicity about the compiler's stance, that "the 'what happened' of history is most helpfully answered by explaining what people thought they were doing"; but the only evidence of what people thought they were doing is what they said, and in politics that is not always reliable. Nor, even when credence may be given to political writings,

does it follow that the author and his sponsors knew what they were doing.

These limitations on the historical value of party literature do not deprive it of importance, nor is the development of the party system to be treated as a mere gloss on personal ambition and economic rapacity. Namier, because he pointed to "interest" as the dominating feature of eighteenth-century politics, has been accused of denying the significance of party, whereas he in fact considered "the rise of party" to be the most important feature of the period following the one he concentrated on. Historians who were attracted by his methods and what appeared to be his clinical ruthlessness were the ones that tried to write doctrine out of political history.

Professor Gunn's contribution will therefore remain a valuable one for the study of the system of "limited strife" which is still evolving today in our parliamentary government. The degree to which the opposition has become institutionalized in the past twenty years, with "Shadow Ministers" and even the rudiments of a "Shadow Civil Service", has yet to find its historian. No doubt the system is exposed to denunciation by every conscientious extremist as a sham, and can work effectively only when there is broad agreement about an institutional framework and its conventions; but these, it must be remembered, are needed for all forms of lasting government.

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# Beyond mere cognition

ROGER POOLE:  
Towards Deep Subjectivity  
151pp. Allen Lane The Penguin Press. £2.25.

There was a time when the left claimed to be the party of reason; it is now the party of subjectivity. This subjectivity runs so deep as to recommend total immersion in the self. Says Roger Poole: "We live in a world totally relative and are ourselves relative aspects of relativity." Subjectivity and relativity are poised against the impersonal objectivity of science. The fear of science engenders a mutation of consciousness which communicates not through words and abstractions but through the language of the body deployed in ethical space. The body impacts grace through signs and indirectly subverts both the objective reality of the citizen body and the supposed corpus of objective scientific knowledge. Only the cult of violence destroys the efficacy of these signs. It doesn't signify. Nevertheless, a new age is being shuffled in, formed according to a fresh paradigm of knowledge which, though as yet barely formulated, grasps wholes and not parts. It is itself made whole by its capacity to heal the split between discrete disciplines, between knowledge and sensibility, mind and body, ought and is, poetry and prose, meaning and form, theory and practice. There's wholeness for you!

Blake indicted Newton and called for "More life"; Dr Poole indicts Galileo and Descartes. The fall into mere cognition occurred in the seventeenth century and it is from that fall we are now to be redeemed. Like any prophet of redemption Dr Poole calls for strong crying in the wilderness and for commitment. Time, he declares, is running out and the world still given over to the malign dominion of the objectivist lie. The redeemed of the new age operate within the world like a secret leaven, incapable of being located or understood by the objectivist systems of detection. The princes of the political kingdom and the principalities of science can only make their defences sure by capitulating to the subjectivist enemy. Instead they are incarcerated in their own criteria, arrogantly certain of the limited sector of reality they have made their own. That's why "everything remains to be done and time is growing short".

## The long-haired Gnostics

ANTON C. ZIJDERVELD:  
The Abstruse Society  
180pp. Allen Lane The Penguin Press. £2.95.

There must be very few sociologists capable of writing with originality about the problems of philosophical anthropology, the meaningful transactions which take place between man, his institutional environment and his culture—or, more simply, about the question of how men can come to feel at home in the world. Most recent writers, showing an appropriate modesty, have confined themselves to expounding, comparing, and commenting upon the theories of the masters: Durkheim, Marx, Weber, Schutz, Thomas and Mead. Anton C. Zijderfeld, however, does far more than that. True, he does comment on the masters, and there is more clarity, understanding and suggestive insight in the twenty or so pages in which he does so than has been seen for a long time. But he also strikes out boldly himself, to give his own analysis of the way in which modern men—that is, young men and women of the 1960s and 1970s—have become estranged from their social and cultural world, of the way in which they protest, and of the dangerous misunderstandings and miscalculations inherent in their kind of protest. It is not surprising to learn that Dr Zijderfeld is a pupil of Peter Berger, or that he came to sociology by way of theology; but it is a tribute to him to say

that in the penetrating clarity of his argument he sometimes actually exceeds his teacher. Most protest in recent years has been marked by beliefs about men and society which Dr Zijderfeld sees clearly expressed in the writings of Luther, and, before that, in Gnosticism. If society is an externally experienced and irritating fact, the answer of protest has been to withdraw into the inner self and to seek a more authentic world there. This was especially evident in the 1960s, when the alienated young rejected structural solutions like those proposed by Marxism, and chose instead simply to withdraw themselves from any affirmation of support for their culture and try to do their own thing in their own way. This was as true of the "Anarchists" and the "Activists" (whom Dr Zijderfeld distinguishes from the "Pure Gnostics") as it was of the "Gnostics" themselves. What he is seeking, however, is a solution to the problem of living in the world authentically, which recognizes that the life of the inner self cannot be lived except through engagement with other people, with roles, with meanings and with institutions. In the terms suggested by W. I. Thomas, what Dr Zijderfeld is seeking to define is the life of the creative man who seeks to make the world which makes him, in contrast with the phillistine who simply signs on to support what institutional values exist, and the bohemian who rejects these values in toto and offers nothing in their place. The alienation of modern man is a new phase in a recurrent process,

what the establishment allows us to experience. So we are not to trust that particular subjectivity. All subjectivities are equal, but some, especially those who agree with Dr Poole, are more equal than others. Dr Poole is stuck on the paradox that a man who claims to have clear and imposing evidence must adduce a logic of justification and criteria of validity. Just affirming that subjectivity is in the end more objective than objectivity is not enough.

Indeed, it is sheer self-indulgence and very much of the kind that has emanated from humanists, English departments and literary gentlemen for a very long time. It is an excellent thing that more and more people in universities are coming to believe what the rest of us have rarely doubted: that the world in its wholeness is really there, that a tree, *laus deo*, is a tree. But having rediscovered the world it is necessary to live in it and to encounter a hard, recalcitrant otherness which you must first invite to impose on you if you are to impose on it. When a rocket goes to the moon it is a triumph over the given based on a profound subjectivity to the given, achieved by those objectivists who are the object of Dr Poole's attack.

Of course, in a sense, one must welcome what he says: the world is more than what is quantifiable and the domain of truth is wider than the doors of scientific verification. In order to show this his work is quite typical of the metacritical genre he represents: he tries to do everything at once, jumbles up desire and fact, confuses levels and modes of judgment; and indeed he almost seems to suggest in his citations that philosophical views are only worth considering if their proponents are of proven political virtue. (Certainly objectivists like Russell and Chomsky seem to be treated seriously because they've sided with the political angels.)

This book is one of the best claiming to preface a new paradigm of knowledge, in the Kuhnian sense. Yet it is just a version of an older humanism, backed by a proper dislike of violence, and in its deeper structure is almost identical with a very much older paradigm which in its time also called itself new—the New Testament. But it is the New Testament diligently translated into a modern heresy: epistemological antinomianism.

When the Greek polis collapsed, the Sophists provided a doctrine for men to live by their wits in a world in which shared meanings no longer worked. Plato offered a way out by suggesting a reified world of forms outside and beyond human experience. Something of this remained and was institutionally embodied in medieval Christendom. The synthesis of reified entities, however, was broken up in the Reformation and in the subsequent commercial and industrial revolutions. On the social level institutions themselves became both inherently unstable and fragmented and the whole was held together by a formal, soulless, rational bureaucracy. Hegel sought to solve the problems of this world intellectually in a new metaphysical synthesis, but it remains for modern sociology, and not just Marxism, to stand Hegel's world of reified, if changing, metaphysical entities on its head, and to show how man can fulfil himself in his world.

Negatively, Dr Zijderfeld's main point is very well made. He leaves us desperately concerned with the dangers of contemporary protest movements which are a symptom rather than a cure of man's social sickness. But his positive prescriptions are all too slender and briefly elaborated. The best of these is his idea of education for a new intellectual asceticism. The rest smacks too much of simplistic liberal and theological solutions, but to criticize his remedies is not by any means to deny the penetrating quality of his diagnosis.

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"computer" by which we infer—not always correctly—external objects from sensory data.

Looking at books written by passive and active theorists, we find an amazing difference between their indexes. Passive books devote much space to stimulus patterns, but very little to the phenomena of perception: spontaneous reversals in depth, changes into other objects, distortions, perceptual paradoxes in which the mind reels by being apparently confronted by logically impossible objects. Active theorists fill their books with examples of such phenomena, interpreting them in various ways, while the passive theorist ignores them, or writes them off as too trivial to concern him. But neither uncertainty nor ambiguity, neither distortion nor paradox, can be properties of objects: so how can we perceive uncertainties, ambiguities, distortions or paradoxes if perception is but a passive acceptance of reality? This simple though surely powerful argument is not raised or answered by passive theorists. By playing down the obvious phenomena of perception (such as illusions, found as children's puzzles) passive books may look academically safe—but at the cost of leaving out what is most interesting.

We may now return to the point that, although we regard brain function as physical, physical and engineering concepts are not adequate for describing some aspects—especially perception of objects. This only appears to be a metaphysical statement if an extreme reductionist view of science is adopted. This matter is controversial: there are eminent scientists who hold that knowledge of a hydrogen atom and the laws of quantum mechanics are sufficient to describe, in principle, any physical situation. Others hold that even common effects such as friction, heat, inertia or gravity (let alone brain function) could not in principle be described in these elementary terms. They hold that with increased complexity and organization new properties arise requiring new concepts to describe them. It would certainly be difficult to ascribe the notion of "cognitive fictions" to a hydrogen atom! (But it would be equally difficult to ascribe such concepts as servo-control, or even image-forming—so this is not a special objection to the "cognitive fiction" notion.)

There is a strong reason (apart from consciousness) why we wish to separate descriptions of aspects of brain function from physics. This is however a very tricky problem, easy to over-state and to misunderstand. Granted that brain activity is physical, we wish to hold that brain states representing information and problem-solving are not usefully described in terms of physical restraints. Consider the black marks (letters) on this

page. They are physical (ink absorbed by paper), but their arrangement, surely, is not to be understood by the principles of physics. For this we must call upon English spelling and grammar, and upon the structure of what I am trying to say. In the vital respect of their order, they are free of the ink and paper of which they are made. If their order were determined directly by their material and its physical properties (as in crystal structure) then they could not serve as symbols. Being in this sense free of physical restraints, and given receptive brains (or computers) then they can serve as symbols: to represent objects in other time and space; or abstractions which do not exist in the sense that objects exist. This is true for all symbols: pictures, words, mathematical and musical notations, video and audio tapes, computer tapes. But symbols are powerless (or are just like any other objects) in the absence of brains or other information-handling systems. Evidently symbols must affect brains in some more or less lawful manner; but for this to be possible the relevant brain states must—like the typist's or compositor's characters—be free to adopt information storing and representing orders. So they must in this rather limited sense be free of physical restraint, though not quite isolated from the rest of the physical world for learning and perceiving to be possible.

The celebrated (and I believe essentially misleading) Gestalt theory of perception postulated physiological restraints to explain many visual phenomena, such as preference for, and distortion towards, figures of "simple" and "closed" form. Visual forms were supposed to be represented in the brain by similarly shaped electrical brain traces—circles by circular brain traces, presumably houses by house-shaped brain traces. These brain traces were supposed to tend to form simple and closed shapes, because of their physical properties; much as bubbles tend to become spheres, as this form has minimum potential energy. Now this implies that visual "organizations" and distortions are due to physical restraints and forces which will not in general be relevant to the logical problems the brain must solve to infer objects from sensory patterns and stored data. This is quite different from a cognitive account of perceptual distortions, and other phenomena which may be supposed to arise from misapplication of strategies quite apart from the physiology involved. Using a slide-rule, an error may be due to physical errors in the rule itself, or to misapplication of the rule for the problem in hand. This is exactly the distinction involved here, between physiological and cognitive errors.

We should expect physiological restraints to produce the same effects

for any object situation (for example after-images; due to retinal fatigue, to any bright light). Misplaced strategy errors should, on the other hand, be related to the kind of perceptual inference from sensory patterns to object, being carried out. So the point is that the physiology should only produce errors when it is exerting general restraints. We should not expect this except in abnormal situations, such as when the physiological "components" are driven beyond their dynamic range. Considering phenomena of perception, such as ambiguous, distorting or paradoxical figures: do these figures upset the physiology, or select inappropriate strategies, to generate errors? In these cases, it seems to be the object significance of the figures which is relevant. So these

tain orientation, or movement, etc) produce repeatable activity in specific brain cells. This discovery came as an unpleasant shock to passive theorists who tend to ignore brain function. To active theorists, it gives a clue to the kinds of data accepted for building object-hypotheses. One might think from this that passive theories would drop out, leaving the field of physiologists and active cognitive psychologists to work together in blissful harmony. Actually things are not quite like this: the physiological advance is so concrete, and clearly important, that many physiologists and cognitive psychologists feel that finding more feature analyzers, and more abstract analysers, is the sole path we need to follow to understand vision. But is it? The physiological mechanisms being discovered relate

Some of the most interesting clues are at present coming from studies of development of perception in babies. Early changes of the nervous system as a result of experience are now being discovered, which will perhaps help to tie up, or relate, physiology and cognition. Possibly the most fundamental and rigorous ideas are coming not from biology but from attempts to program computers to see and handle object-relations. It proves necessary to make the computers develop hypotheses and select the most likely; given the data from its glass eyes.

There is more to this, for some computer programs designed to give "scene analysis" (recognizing objects from pictures by computer) assign alternative object probabilities to selected features in the picture, and then change these probabilities, according to probabilities assigned to other features of the scene. For example, a given shape may be a box or a building. If what is taken to be a hand is above it, then the probability of the box hypothesis will be increased, and the building hypothesis decreased—for hands are generally too small and too low to be above buildings, but not above boxes. Now this gives interactions, due to conditional probabilities, which may generate visual effects in computers or brains quite like the old Gestalt phenomena, but for an entirely different reason. The reason is to be understood in terms of cognitive strategies or procedures for making effective use of data for deciding what objects are present in the scene.

In Machine Intelligence only precisely formulated theories are adequate: any gaps or errors in the theory show up as errors in the machine. At present machines perform only the simplest tasks, and are easily confused by shadows or small changes we scarcely notice.

Although the difficulties in Machine Intelligence demonstrate all too well how little we know, it now seems that we are beginning to understand ourselves—the inference mechanisms of our humanity—by inventing adequate concepts for machines to infer objects from data: to perceive our world with their metal brains and human-devised programs. Is this science fiction? Yes—but like all fiction it may be largely true.

Philosophically this is not the end of the matter. Behaviourism, with its related passive theories of perception, is unconcerned with what goes on between the senses and behaviour; indeed denies that anything goes on. This may be a legitimate expedient for focusing attention upon certain questions in behavioural research; but as a philosophy it is a kind of nihilism with a built-in contradiction. We are supposed to accept the behaviourist's writings as expressing his observations, thoughts and judgments: which in these same writings he denies having. We are reminded of the poignant postcard received by Bertrand Russell saying: "I am a solipsist—why are there no other philosophers like me?"

Professor Gregory is head of the Brain and Perception Laboratory, University of Bristol.

## Lunar cartographer

ERIC G. FORBES (Editor):  
The Euler-Mayer Correspondence  
(1751-1755)  
115pp. £4.25.

Tobias Mayer's "Opera Inedita"  
166pp. £6.90.  
Macmillan.

Tobias Mayer was a German astronomer, more or less eluded by fame, and now remembered by only a small number of devotees of the history of eighteenth-century astronomy. As a skilled cartographer, he did some very creditable lunar maps, and he was once well known for his tables of lunar motion, which played an important part in the history of the problem of determining longitude at sea. Six Göttingen lectures by Mayer were first published

in 1775, in the hope that the world would then better appreciate Mayer's achievements. E. G. Forbes has now published an English translation of that edition, and, separately, a translation of a collection of thirty-one letters between Mayer and the prolific Swiss mathematician Leonhard Euler. Stender as the two books are—and how expensive!—they provide an easy digest of evidence which it was previously tedious to unearth: Dr Forbes's notes should be an added incentive. That Mayer would be concerned with the prediction of eclipses, the proper motions of stars, and astronomical refraction, was perhaps itself predictable, but one of the most surprising and entertaining of the lectures is a "treatise on the relationship of colours", which attracts the longest commentary from Lichtenberg.

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There is a contradiction at the very heart of the existing theories of sense perception which can be expressed by the following two assertions: the senses *cannot* be trusted and the senses *can* be trusted. From the biological point of view it would seem that the senses *must* be trusted.

Existing theories try to resolve this contradiction by assuming either that the inputs of the sensory nerves are corrected by the brain, or that the corresponding sense impressions are interpreted by the mind. There are many such theories of correction, inference, interpretation, compensation, equilibration, organization and the like, all taking it for granted that the process of perception is some kind of operation on the deliverances of sense. But there is another way of resolving this contradiction that seems to us more promising. It is to assume that the inputs of the sensory nerves are merely accidental to the process of perception and that the useful inputs are actually perceptual systems. These are systems which adjust the

The trouble comes from the long-standing assumption that the senses at birth can deliver nothing but meaningless signals over the sensory nerves, signals that have to be interpreted in the slow course of learning by association. On this assumption it follows that knowledge must precede perceiving. But perhaps the long-standing assumption is wrong. We might assume instead that the senses, even at birth, are perceptual systems that pick up facts about the world. On the first assumption learning is a matter of

and skin, and they suppose that stimuli as such carry no information about their sources in the world. But we reject this doctrine and try to show that an array of light, for example, specifies the surfaces from which the light is reflected. At least it does so in the world outside the laboratory. Similarly, a natural flow of sound specifies the vibratory event from which it comes, a taste or an odour specifies the substance from which it emanates, and the sequence of pressures obtained by feeling an object specifies the object.

The old theories of sense perception assumed that it consisted of operations of the mind upon the data of sense. If this notion sounds too philosophical it could be made to sound more scientific by asserting that perception consisted of the processing by the brain of the signals arriving over the sensory nerves. This is the modern formulation but actually it is the same theory. It still says that the act of perceiving is something that occurs wholly inside the head. The

Not that Professor Hoffman is unaware that he is sailing over well-charted waters. He acknowledges the existence of Princess Bonaparte from time to time, though condescendingly, and uses Krutch, an

his mystifying cloak  
Inscribed with runes from tongues he  
To make the ignoramus turn his head  
Well, Professor Hoffman's head has  
been turned, but Poe probably had  
not much to do with it.

tion. Hardy also stands as a challenge to aging genius. Although he began writing poems early, his first collection appeared when he was nearly sixty, and he composed excellent work in his eighties. Finally, it is not odd that Dr Richards, who described the "neutralization nature" as the central change human attitudes during the past hundred years, should have used Hardy's work as a model when he chose to turn poet himself, especially since he was sixty at the time.

But the tone of *Inner Colloquies* is hardly so bleak as that

Thought can be a driving rage  
And longing be a mirror;  
Each must be both; so stage  
No conflict here, no error.

In one poem, "The Temporal and the Eternal," Dr. Richards replies to Hardy's mournfulness (in the first of the *Wessex Poems*) by accepting change as the essence of life, and by defining the self at the point of death as one in a series of selves that have been both lost and kept. We may wonder whether Hardy's grief over "change and chancefulness" does not touch Dr. Richards privately more often than in his poems. But the evidence of his courage can only provoke admiration.

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tion. Hardy also stands as a challenge to aging genius. Although he began writing poems early, his first collection appeared when he was nearly sixty, and he composed excellent work in his eighties. Finally, it is not odd that Dr Richards, who described the "neutralization nature" as the central change human attitudes during the past hundred years, should have used Hardy's work as a model when he chose to turn poet himself, especially since he was sixty at the time.

But the tone of *Inner Colloquies* is hardly so bleak as that

Thought can be a driving rage  
And longing be a mirror;  
Each must be both; so stage  
No conflict here, no error.

In one poem, "The Temporal and the Eternal," Dr. Richards replies to Hardy's mournfulness (in the first of the *Wessex Poems*) by accepting change as the essence of life, and by defining the self at the point of death as one in a series of selves that have been both lost and kept. We may wonder whether Hardy's grief over "change and chancefulness" does not touch Dr. Richards privately more often than in his poems. But the evidence of his courage can only provoke admiration.

—Kent Life

- "Delicate precision of style and balanced independence of judgement."**

—T.L.S.

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All this sounds splendid, and it does not take the reader long to discover that Pat Rogers is a clever man and that he has the whole subject at his fingertips. The one drawback is that he seems not to have the vaguest idea how to write a readable and reasonably consecutive book or how to handle his transitions. No opportunity to digress is missed, no fact or anecdote is omitted. A mea-

This prodigious influence of which the work most originally have been an exponent, is extremely informative essay is a great pity, because one can see by the first chapters and the final chapters that it is a thoroughly good subject, one which, as Hawkins, in his *Life of Johnson* has summarized very well:

During the usurpation, a prodigious number of codgers and libellous pamphleteers, and papers, tending to exasperate the people and encrease the confusion in which the nation was involved, were from time to time published. The authors of these were, for the most part

All these matters are to be found in the first and last sections of the book. The intervening pages on Pope, Swift and all manner of other things are admirable in their way, but belong to another book. Is it ungracious to complain at being thus presented with six volumes at the price of one? We think not, because the spectacle of an author drowned in his own material is one that is bound to discompose the sympathetic reader.



# 'Can't you see? I have made peace'

KEITH MIDDLEMAS

Diplomacy of Illusion

The British Government and Germany, 1937-39  
510pp. Weidenfeld and Nicolson. £4.75.

Geography imposes on history certain permanent truths. "We are part of the community of Europe," Gladstone said in 1898, "and we must do our duty as such." The nature of the duty changes with the centuries. It has been there from Agincourt to Austerlitz, and beyond. It cannot be escaped. Arrows have been replaced by missiles. If maps were rolled up they had to be unrolled again. Lamps may go out; we have to play a major part in relighting them. It was an English Queen who said the word "Calaix" would be found lying in her heart. "Munich" has lain, and still lies, on the conscience of today's older generation. Some bear the scar definitely, proclaiming that there was nothing else Britain could have done. For others it is a mark of shame. Only the unthinking ignore it completely.

Yet even to the most concerned the question occasionally poses itself whether there has not by now, in all conscience, been a surfeit of writing about it. Has not this particular bottle of the books been fought to a standstill? If any such thought accompanies the opening of *Diplomacy of Illusion*, it is soon banished.

It will be a long time before there is another study as consummate and as coherent as Keith Middlemas's. His reading has been thorough. He has taken full advantage of the latest released British Government archives—Cabinet Minutes and Conclusions, and documents of Cabinet Committees, the Prime Minister's Office, the Foreign Office, had the Committee of Imperial Defence. He has woven into his narrative extracts from Neville Chamberlain's diaries and letters to his sisters, and has drawn on other private collections—the Templewood, Vansittart, Inskip, and Pownall papers—lodged in various universities. At times *Diplomacy of Illusion* seems a mosaic. It is a brilliant one. Mr Middlemas has a theme, or rather a number of themes. He develops them with scrupulous fairness. Although polemics are not his purpose, he does not fear to come to conclusions. His final "Reckoning" is firm, but judicious.

Mr Middlemas delimits his ground at the outset. His study is "orientated from the point of view of the Cabinet". Inevitably it settles into a concentration on the power and practice of the Prime Minister, Neville Chamberlain's

sense of urgency combined with his masterful running of a largely subservient Cabinet to produce an almost unique situation in modern British government in which both Foreign Office and military advisers were subordinated

to a process of decision-making by a small inner group.

(Decision-making is at present a very much in vogue; the reading of *Diplomacy of Illusion* could well become obligatory in some curricula.)

The inner group exceeded their mandate. Halifax's information to the Cabinet was on occasions not only selective, but at least once inaccurate. The Prime Minister's decision to visit Hitler was made before the Cabinet knew about it. At Godesberg Chamberlain broke away from his agreement with the Cabinet. Having weakened whatever bargaining position he had with Hitler, and being "moved for the first time by doubt, even despair... he did not seek advice from his colleagues in London". Whether a Cabinet as collectively feeble as Chamberlain's could have brought about any better outcome may be questioned. The fact remains that they were more than once kept in ignorance. Even so, the revelations from the newly released papers of what went on in Cabinet and in Cabinet Committees is of absorbing interest.

Largely personal rule—"a rigid straitjacket, closed against the light of opposition and informed only by the servants of appeasement, Henderson, Wilson, and the rest"—is not sufficient to explain the ignominy of Munich. Undesirable as the nature of that rule was, it might, given an

other man and other circumstances, have succeeded. Mr Middlemas states his main theme in the epigraph on his title-page: Sir Eyre Crowe's dictum: "Political and strategic preparations must go hand in hand. Failure of such harmony must lead either to military disaster or political retreat." Those who have argued that at Munich Chamberlain bought a valuable twelve months in which Britain could rearm, are faced with the fact that it was due to Chamberlain and then as Prime Minister that Britain was in such a vulnerable state. He was a businessman. To him finance came before strategy. He underrated Britain's economic potentialities, as her wartime achievements showed. And even after the Anschluss "the whole acceleration of rearmament" was something of an illusion because the increases were won largely at the expense of the War Office and the principle of rationing was enforced as firmly as before. Lack of means led to an unjustifiable end.

At heart Chamberlain was also an isolationist. He was a man in blinkers. Neither he nor Halifax, his Foreign Secretary, was experienced in foreign affairs. Mr Middlemas says the fact that "the British Cabinet simply did not know very much about Czechoslovakia... lends a certain poignancy to Chamberlain's famous utterance about 'a far-away country' and

"people of whom we know nothing... It does not diminish his responsibility. There had been a period in the past 300 years when the British Prime Minister could safely afford to be ignorant about both history and geography. His earlier proposals to carve up Africa showed him also out of date. A fairer it must be said that a historical sense of this kind of appeasement was in evidence in other circles also.

Mr Middlemas states at the outset that his book is confined "to the study of the process of government". In the main, it is. Yet although one side opinion had little effect upon the inner group, and none on the Prime Minister, it cannot be altogether ignored. Some account is taken of it and especially of the Dominions' fear of a showdown. This has always been one of the pro-Munich platoon's main arguments. Enough attention has been paid to the question whether, given other men in power in Britain, with other convictions guiding them, and with a greater will to communicate with the people both at home and abroad, the climate of opinion throughout the Commonwealth which includes Britain might have been different. Indeed there was little general awareness of the evil the British people had to combat. The Devil was supposed with, it was paid his price. The goods were not delivered. There are few more tragic words in our annals than Chamberlain's remark to Winston after Munich: "Can't you see? I have made peace."

One other service Mr Middlemas does the reader is not to overestimate the role of *The Times* under Geoffrey Dawson. That period of what may be called "Journalism of Illusion" is firmly put in its place.

VIKAS PUBLICATIONS

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theory that we advocate says that the act of perceiving occurs in a circular process from the sense organs to the brain then back to the sense organs, and so on. It involves exploration by the eyes of the whole array of light and exploration by the hands of the whole layout of surfaces around one. Man's delicately mobile postural system, which includes the eyes, head, hands, and body, is beautifully adapted for this activity.

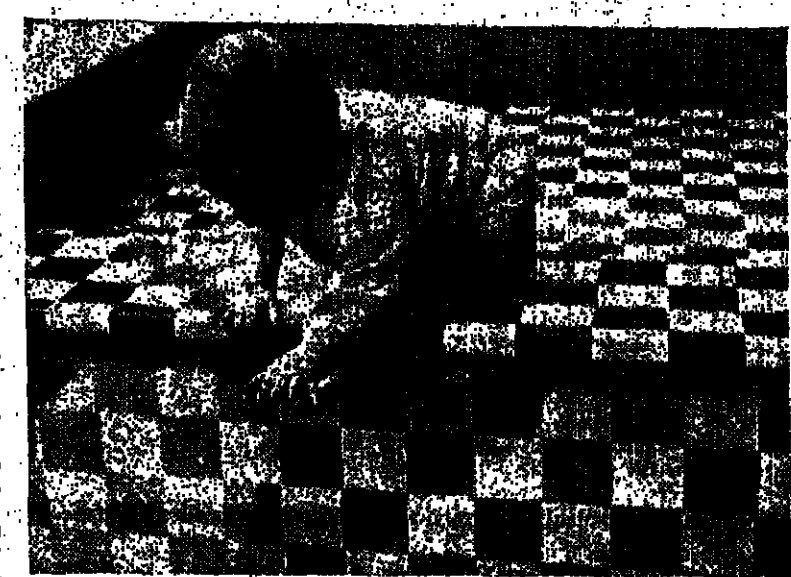
Perception therefore does not have to be conceived as the interpreting of messages or the learning of the so-called "sensory code". It is the exploring of an array, the enhancing of available information, and the optimizing of its pickup. The eyes, for example, look around, focus their lenses on details of the world, and modulate the intensity of the light when the illumination is too high or too low. For listening, the head turns to equalize intensity of input to the two ears so as to point the head towards the source of sound.

The assertion that the information in stimulation specifies its sources in the world does not imply that this information is automatically picked up. It is available, but it may or may not be perceived. An observer must extract the information from the flowing array of stimulation. And he must often learn to do so. What is it that the human observer learns? We suggest that, beginning as an infant, he learns the distinctive features of objects, the layout of places in the environment, and the invariant features of events. A human observer also perceives representations of things and places and events, of course, and in that case the information coming from the picture or the television screen is essentially the same as it is when it comes from the environment. Finally, a human observer learns to extract information from the constituents of spoken and written language, but this is information of a

quite different sort. It is not essentially the same as that which comes directly from the environment. The child's learning about the world from speech and then from writing, is a much more complex process than learning about the world from what we call first-hand experience.

Here is a brief account of the development of perception of objects. The process begins in the newborn infant with visual attention to certain salient stimulus properties that carry information: motion, brightness contrast, and the kind of contrast provided by the edge of a surface in the world. The infant's attention is "caught" by these properties. The world he perceives, then, is not at all a "blooming, buzzing confusion" as William James put it, for he at least sees surfaces and edges. But this is only the beginning, since objects gradually become differentiated from one another by their distinctive features, that is, by attributes that render each object different from other objects. For example, babies differentiate human faces from non-faces in their environment very early, although it is doubtful that they perceive the relations between the features of a face before they are three months old, or thereabouts. Individual faces are not differentiated from one another until six months have passed. Other properties of an object such as its size and shape are differentiated within the first few months of life, before the baby can walk or even reach. There is no substance in the old notion that such visual attributes must gain their meaning from touching and grasping.

A human face, of course, has properties that are not constant over time, as well as properties that are. The movement of the facial muscles produces different expressions that portend different events. Moreover a moving face usually produces sounds. Interestingly enough, an infant at twenty days perceives the



No-go area: testing depth perception on the "visual cliff". The baby refuses to venture on the plate-glass surface.

voice as coming from the face—he does not seem to have to learn to connect these sensations by associating the sound with the sight.

An object comes to be perceived as permanent even when it is partially or entirely hidden by another object. If a screen is drawn in front of an object so that it is gradually concealed and then gradually revealed again, an infant soon learns that it has not gone out of existence and expects its reappearance. There is optical information for its continued existence and for its only having gone out of sight. This is not the same thing as remembering the object. Later on, when a child has learnt names for familiar objects that he has distinguished from one another by their distinctive features, he knows things about objects that he can remember and think about, but perceptual differentiation is basic to this knowledge.

The differentiation of the features of the environmental layout also develops without having to be supplemented by knowledge. When a crawling infant is placed on a platform with a visual cliff on one side and a very shallow drop-off on the other side (but actually a glass surface of support on both sides; see above) the infant will crawl to its mother over the shallow side, but not over the deep side; this is because it has "knowledge" that a cliff is dangerous? This seems unlikely. The baby has no past experience of falling and surely does not inherit racial memories of falling.

What about the perceiving of events? Events occur over time and are of many degrees of complexity, since a short episode may be embedded in a much longer episode. If perception were really based on single elementary sensations, each successive sensation would have to be somehow integrated for the total event to be perceived. Again, it seems that learning proceeds by differentiation, not by integration. For example, if an object approaches an observer on a collision course he will blink or duck or dodge so as to mitigate or avoid the collision. The optical information for this imminent event is the progressive magnification of the silhouette in the field of view. Experiments consisting of the display of this information have been done with several species of animals and with human infants. The shadow of an object is cast on a translucent screen in front of the observer and its size is increased at an accelerating rate. The adult observer perceives a virtual object approaching him. Turtles faced with this display pull their heads within their shells. Monkeys cry out and rush to the rear of the cage. Human infants, at two weeks, respond consistently with a backward jerk of the head and by raising the hands. A little later they differentiate between the information for an object on a collision course and that for an object on a non-collision course. This difference depends on the symmetry of magnification. A perception of this sort can hardly be a matter of successive sensations. It must be that optical motions of different kinds are distinguished from one another as perceptual development proceeds.

Different events involving motions are differentiated very early in life. The same animal that retreats from an approaching object may follow a retreating object. Baby chicks run away when they are faced with the optically expanding shadow on the screen but they move towards an optically contracting shadow on the screen. This response to the diminishing shadow is related to the imprinting that occurs early in the life of a young bird such as a chick or a duckling. To run after a retreating mother and then succeeds in staying with its protector and with its kind. And it demonstrates for us, incidentally, that two contrasting kinds of event are distinguished.

The early development of perception seems to us clearly to demonstrate the picking-up of information that is available in stimulation and not the supplementing of sensations by memories of past experiences, or by some kind of knowledge. But the reader may ask, what about symbols like words? They are perceived too. Aren't they at least a clear case of supplementing auditory sensations with an associated meaning?

The analysis of the information in a speech event tells us that it has three quite different kinds of information, all of which must be comprehended. There is the sound itself, the phonetic sequence, to be perceived. There is the syntactic information, the rule system that governs how words are put together. And there is semantic information, the "meaning". How does a child learn to pick up all this information? One thing seems certain—he does not simply learn by association. How then?

The first essential to this development is what the linguists call *segmentation* of the sounds of the speech stream. Speech comes in a physically continuous flow, usually without the separation we seem to hear. This stream must be analysed, the lowest of which is considered to be the phoneme and the higher levels being syllables, words, phrases, etc. But phonemes themselves must be differentiated. They are differentiated from one another by sets of contrastive features. These distinctive features have a developmental sequence of their own, as the linguist Roman Jakobson has taught us. The first differentiation is between the optimal vowel and the optimal consonant, and development goes on from there in a series of ordered splittings.

It seems unquestionable that this process must be one of differentiation, not of association. The features cannot be associated with anything, since, as Jakobson said, they indicate more "otherness". The same twelve pairs of contrastive features serve to differentiate, in various combinations, all the phonemes in human speech. The phonemes themselves are abstracted, by a process of analysis, for one cannot hear alone, chopped out of a speech segment. Yet we do all differentiate it and acknowledge its constancy. We do not learn to perceive phonological features of speech, then, by adding something on.

The second essential in the learning of speech is grammar. No one has succeeded in accounting for a child's acquisition of grammar by an associative process. A child's first

sentences are not copies of the sentences of adults, but they nevertheless follow rules of grammatical construction in accordance with the relations expressed, such as agent-action, agent-object, and action-object. What the child has learnt appears to be the result of an inductive process—the extraction of relations from information presented to him in adult speech.

The third essential in learning speech is meaning. How do words come to have meaning for the child? By associating a word with a referent, like the word "kitty" with the animal referred to? This is the answer that used to be given, but it seems unlikely. Meaning in speech is not conveyed by single words, but always in a relational context. For example, when a child says "kitty all-gone" or "here kitty," he is referring to an event in the world. The meaning of the event has been perfectly clear to him for some time. What he has succeeded in observing is the correspondence between the event itself and what someone said about it while it was occurring. Children begin by making predictions about the immediate environment. Again, there seems to be an inductive process involved, an extracting of the relation between the two kinds of information, one in the event itself and the other in the spoken words.

By this brief survey of the development of perception we have tried to show that a child uses his "senses" in an active and adaptive way to extract information that is present in the ongoing flow of events in his environment. He does not use previous knowledge to interpret his sensations, or to supplement them. He could not do so, for he must begin by picking up this knowledge from what goes on around him. The pick-up comes from differentiating the complex, embedded, relational, dynamic structure of the world.

Eleanor and James Gibson are Professors of Psychology at Cornell University.

## Information and Control in the Living Organism

B. Rosenblat.  
Professor of Biology at the University of Freiburg, Germany.  
1971: 84 x 54 in: 160pp: 2 tons, 42 illus: Imp: 412 10860 G: £130 net

Presents the basic concepts of information and control in the living organism in a way suitable for readers with no previous knowledge of the subject. Among other things, the book is important for its descriptions of the experiments which demonstrate signal transmission and data processing within the human organism which can be carried out without any laboratory equipment. Also explained are examples of data processing in living organisms, including lateral inhibition, the eye's adaptation to different degrees of illumination, the conditional reflex and the "learning matrix".

## Design for a Brain

The Origin of Adaptive Behaviour  
W. Ross Ashby  
2nd edition 2nd imp. 1970: 84 x 54 in: 280pp: illus: 412 64830 G: £2.50 net; Science Paperback: 412 20030 2: £1.25 net

## An Introduction to Cybernetics

W. Ross Ashby  
1956: 84 x 54 in: 300pp: 18 figs and tables: 412 05970 4: £2.10 net.

Chapman & Hall  
11, New Fetter Lane, London EC4A 3DF

## The Chanak crisis and after

W. N. MEDLICOTT, DOUGLAS DAKIN and M. E. LAMBERT (Editors)

Documents on British Foreign Policy 1919-1939

First Series: Volume XVIII 1064pp. HMSO. £11.75.

Collections of diplomatic documents seldom have much dramatic glamour, but the latest instalment of *Documents on British Foreign Policy* between the two world wars is an exception. It covers relations with Greece and Turkey from September 3, 1922, to July 24, 1923: in other words from the Chanak crisis to the signature of the Treaty of Lausanne. Only one other episode in peacetime during the present century has had such a cataclysmic effect on British history as the Chanak crisis and that too took place in the Near East—the Suez Canal in 1956. There were other parallels between the two occasions: for example, the misunderstanding and acrimony between the British and French and the marked reluctance of the British Dominions or Commonwealth to become involved. But the earlier episode had even wider repercussions. Not only did it end the career of a British prime minister: it also precipitated the downfall of the Greek and Turkish monarchies and it was incidentally accompanied by the emergence of the Fascist dictatorship in Italy.

The *Documents* chart the unhappy story in the most circumstantial detail. The central figure is of course Lord Curzon: dignified but arrogant, brilliant but pedantic, far-sighted but petulant, admirable but unlovable. His contempt for lesser mortals is undisguised. Poincaré was the worst: at one point, "Lord Curzon, explaining that he could not tolerate the repeated and unfounded charges against himself and his country that M. Poincaré had thought fit to make, asked leave to suspend the sitting and take time to consider his action". In other words, he walked out in a huff; and it was not the only time. The Italians were, if possible, more irritating and undependable than the French; but they could be treated as a joke until Mussolini arrived on the scene, to throw his weight about and pretend to an understanding of matters that were beyond him. The Turks were barbarians and the Greeks little better, except for Ven-

zelos. The latter had the inestimable advantage of having the late Harold Nicolson assigned to him as intermediary with Curzon, and that assured him a more than fair hearing. But even Nicolson could not conceal the callous irresponsibility with which Venizelos allowed his adherents in Athens to execute six ministers and generals, whom he could have saved by lifting his little finger.

The story thus has a setting which can only be described, in trite phraseology, as "a Greek tragedy". It begins on September 3, "with the Greek request, to the British government (which was concealed from the French government) to intercede with the Turks for an armistice in Asia Minor. It came too late to save Smyrna, though the Turkish army only arrived there six days later. One of the striking differences between such a crisis fifty years ago and today is the time-lag between events. Immediately on their arrival on September 9 the Turks began looting and burning Smyrna and systematically murdering the Greeks and Armenians; but it was not until September 16 that the news reached the Foreign Office, and even then Curzon could still write about "alleged Turkish atrocities, if confirmed...". Today they would have been instantaneously confirmed by the television cameras. Whether a modern system of communications could have averted the tragedy of Smyrna is debatable. On the contrary, it might well have made the crisis at Chanak even worse, for the man on the spot, General Sir Charles Harington, was a good deal cooler than his masters in London. One of his advantages was that the orders he received were almost always a day or two out of date, so that he could safely rely on his own considerable discretion.

The outlines of the story are familiar. The documents add substantially to the detail without affecting the general picture of Turkish truculence, Greek desperation, French duplicity, Italian opportunism. It is more difficult to characterize the British role, simply because the detail is so abundant. Yet curiously much is missing, which can only be filled in from other sources. The roles of Lloyd George and Churchill in the affair are well known and scarcely commendable:

but neither of them makes more than a fleeting appearance in this volume. Lloyd George sends a message of approval to Curzon for standing up to Poincaré; Poincaré refers once to Churchill as the "civilian" who misled the Allies into the Dardanelles campaign, giving that as a reason for not letting France be misled again; and that is about all. There is no more than an indirect allusion to the fall of Lloyd George's government. Curzon told his Ambassador in Paris on October 23 (four days after the resignation) that the "new government is not yet formed". Mussolini's seizure of power on October 31 gains more attention in the documents than the British General Election on November 15. This is only natural, the Foreign Office being what it is; but it underlines yet again the impossibility of writing history from diplomatic documents alone.

The Foreign Office came into its own, however, in the aftermath of the Chanak crisis. Nearly three-quarters of this huge volume is concerned with the negotiation of the Treaty of Lausanne. There were, of course, frequent and alarming noises off to distract the negotiators on the Swiss lake-side. For one thing, it was sometimes difficult for them to identify the Greek and Turkish governments with which they were negotiating. The Greeks still had a king, though a new and inexperienced one; behind him was a shadowy cabinet; and behind them was a revolutionary council of republican colonels, who nevertheless insisted that "the Revolution had placed his Majesty on the throne and intended that he should remain there". (They threw him out exactly a year later.) Their chief negotiator was Venizelos, who held no office and declared that he would "never again enter the political arena in Greece". (He was in fact to become prime minister again for four years.) On the other hand, the Turks had two distinct governments, one led by Mustafa Kemal and one appointed by the Sultan. Fortunately the Sultan abdicated and slipped away from Constantinople on a British warship before it was too late. Even so it was only by the narrowest margin that the conference at Lausanne succeeded. Renewed war between the Greeks and Turks was always

imminent, for the Greeks in Thrace were far from beaten and could probably have taken Constantinople if the French and British had let them. At one point Curzon withdrew from Lausanne altogether; the conference was adjourned; and it was seriously doubted whether it was worth re-convening.

How success was eventually achieved is charted in almost tedious detail by the documents. Undoubtedly Curzon deserved the greatest credit for his patience and skill. Some historians have regarded the Eastern question as finally resolved by the Treaty of Lausanne. Even if that shows an exaggerated optimism, it was certainly a monument of statecraft and proved the most durable of all the peace treaties following the First World War. In a long appendix, it is possible to trace closely the process of drafting and amendment which produced the final result. Curzon studied every word and phrase, and left his mark on every clause. Familiar though the treaty is, it is still interesting to note some of its idiosyncrasies. One of them is that it invokes the term "race" as a criterion of discrimination. Perhaps no treaty before and few since have done so. It is also worth recalling that the article on Cyprus declares that Turkey (but not Greece) recognized the annexation of the island by Britain.

A further article was added on Turkish insistence (which the Foreign Office at first resisted but later accepted, apparently on the advice of the Colonial Office), providing that Turkish Cypriots could opt for Turkish rather than British nationality; but in that case they must emigrate to Turkey within twelve months. For some years afterwards the Turkish Government actively urged them to do so. These facts give a rather ironic sidelight on the Turkish claim a generation later that, if the British Government contemplated ceding sovereignty over Cyprus, it could only be to Turkey.

Many other intriguing by-ways and dead-ends can be followed in the vast documentation of the Treaty of Lausanne, though none of it compares for drama with the first chapter on the Chanak crisis. The editing is, as always, impeccable, and the preface is a model of succinct scholarship.



# In classless Hausaland

**POLLY HILL:**  
*Rural Hausaland: A Village and a Setting*  
368pp. plus 35 plates. Cambridge University Press. £7.60.

Polly Hill, whose *Migrant Cocoa Farmers of Southern Ghana* has remained unchallenged as the authoritative work on the topic, has now given us another important book. *Rural Hausaland* is at once a case-study of the socio-economic life of a single village in the core Hausaland of Northern Nigeria and a projection of the *travail de vie* of the essential rural Hausaland in general. Not that this is the first socio-economic study of the Hausa. Dr. Hill pays due credit to the seminal writings of M. G. Smith and G. Nicolas (many would add here the name of Abner Cohen, for his close work on the migrant Hausa communities), yet her central thesis remains unshaken: the insistence that rural Hausaland remains, in a socio-economic context, "the under-explored region of West Africa".

This study is the outcome of Dr. Hill's various visits to and a spell of several months' residence in Hausaland during which she made a carefully controlled observation of the life of "her" village. This was Batagrawa, a village of some 1,400 souls in Katsina emirate, one of the original seven Hausa city-states that flourished as long ago as the end of the fifteenth century. As in her recent studies of rural capitalism in Ghana and Nigeria, she explodes a few myths. For her, rural Hausaland emerges as a classless society rather than the stereotype of one characterized by a sophisticated status-orientation. She elucidates what *kindi* (cash) really means to the Hausa—something far removed, as she says, from the pejorative European notion of filthy lucre. She finds, too, the traditionally held demarcation between cash and subsistence sectors too blurred in village life to be any longer meaningful, and she challenges the assumption that Hausa villages are no more than cities in microcosm. Dr. Hill has never been one to shrink

the unusual in the format of her books. In *Rural Capitalism* she explored the novelty of including within the text itself a number of appendices to individual chapters. In *Rural Hausaland* she has taken her experimentation a stage further. The book is something more than the writing-up of close research in twenty conventional chapters. A further 135 pages, or 10 per cent of the book, take the form of a "Commentary". This comprises a thousand key words in English and/or Hausa, alphabetically arranged to cover the basic terms and concepts in Hausa agriculture and rural society, e.g. Markets, Ploughs, inheritance, *gandu* (a specialized form of cooperative farming between father and married son). Some entries are dealt with in a few lines; others call for two or three pages of discussion; and others again are divided into comments relating to Batagrawa in particular or Hausaland in general.

This researcher's *catalogue raisonné*, as it were, forms an extremely important part of *Rural Hausaland*. Nevertheless, since it relates only to what is contained in its antecedent text, it cannot quite be looked on as a comprehensive glossary of rural Hausaland. Thus crops and agricultural activities which feature in other parts of Hausaland but are either foreign or unimportant in Katsina emirate, for example, paypaw, rice, date palms, pottery, etc., earn minimal entries. Dr. Hill makes this limitation clear. Yet what we do have is something far superior to a super-glossary. It is a rich repository of reference material, to be used in conjunction with the extensive bibliography. The device, hugely successful for the committed Hausa researcher, does away with the need for footnotes and thus, as Dr. Hill believes, makes for less interruption.

As for her analysis, it bears her well-known stamp of rugged individuality. Here her own words reveal, better than any interpretation, her defiant methodology with "undertones" of plain reluctance to suffer fools gladly. Adopting the informants' own classification of economic groups (itself an interest-

ing technique), she maintains that we have been able to avoid some of the limitations of a static approach based on the concept of a single model farmer. It is to be hoped that no replacement model farmer with four other dummies. . . . The politico-economic environment in which village life is set is here taken entirely for granted. . . . As should be obvious enough to the reader, the picture of socio-economic life in Batagrawa which has been painted in this book is partly abstract, partly impressionistic, partly realistic.

As one has come to expect from Dr. Hill's handwork, her attention to statistical data is simply revealed in a wealth of tables. Some of these reach down to an extreme level of detail, e.g. "Imputed slave origin and marriage" or "Time spent by 18 labourers on different occupations". But none strikes as irrelevant, and along with excellent maps, figures and plates they enhance the value of the text considerably.

It is difficult to foresee how anybody working on rural Hausaland in future could fail to turn to Dr. Hill; and even harder to imagine how he might do so in vain. As a book of reference and resources, *Rural Hausaland* is assured of a place on the bookshelf of every Hausaist. As an exercise in the micro-socio-economics of an African village, here and there extrapolated to a wider level of rural hypothesis, its vulnerability to criticism of "it's not like that in my village" from colleagues is something that Dr. Hill takes the precaution to discount in her preface. For her

"relentless pursuit of the theme of economic inequality she remains unrepentant; and she stands adamant in her belief that in Hausaland and the rural sector that forms the essential Hausaland and that the elites, famous as they have been down the centuries, are in the final analysis the anomaly. Once again, it seems, it is the microstudy, at this level of the grassiest of roots, that beckons researchers. In the Hausaland of the future it must be the rare one among them that will not feel gratitude for some gem or other in Dr. Hill's dazzling display.

# More than custom

**A. S. DIAMOND**  
*Primitive Law Past and Present*  
410pp. Methuen. £5.

A. S. Diamond is a legal scholar who also has a very wide knowledge of the literature of social anthropology: a rare combination. He is therefore well qualified to write a book on primitive law, and he has written a very good one—a much revised and extended edition of an earlier volume. He has, first, had to face the question which has long bedeviled anthropologists, and also lawyers, of how, or indeed whether, one should attempt to distinguish between law and custom. It may not matter which word one uses in a particular ethnographic study—one may just describe what happens when a certain event occurs and a certain situation is thereby brought about; but when we seek to make wide comparative studies the need for some fairly clear-cut distinction is felt, as it is unlikely that general statements which are both true and significant will come out of the exercise if there is uncertainty whether what is being compared is in fact comparable.

It is sufficient to say here that Mr. Diamond has decided to accept the view that if one is to speak of law one speaks of rules of conduct with sanctions that can be enforced through courts of some sort or another: no courts, no law. Nevertheless he gives much attention to peoples like the Nuer, the Tallensi and the Tiv who, in that sense, have "strictly speaking" no law nor any government.

His procedure is to analyse the nature of law at various stages of economic (biomonic to cultural) development. Something of the kind has often been done before, and a long time ago, as for example, Montesquieu, Condorcet, Maine, Gwynn, John Millar, and others, more recently by Niebuhr and his house, Wheeler and Ginstert.

Mr. Diamond points out, however, in a way which has seldom been done so clearly before, how close the laws (codes) of early periods of European history, for example, Anglo-Saxon England and Merovingian France, resemble, even compared to, the laws of such later periods, to the laws of such later periods, though sophisticated, peoples as the Nguni of South Africa, the Lacustrine Bantu and the Nape of Nigeria. This attempt at synthesis is revealing, even if it can be a little confusing to the layman: a scissor-and-paste method resulting in a long string of references: so-and-so do this, so-and-so do that. But Mr. Diamond has done his best for us by avoiding, wherever possible, legal jargon and by using some of the best modern authorities for the anthropological side.

In the course of the discussion, Maine comes in for some severe criticism: "The notion, therefore, to which Maine's *Ancient Law* has given currency, that the codes were mere collections of existing custom, first by fictions, then by equity and last by legislation, has no substance." He is censured also for saying that in the early history of law "a rule of law is not yet distinguished from a rule of religion". Mr. Diamond sees no evidence in support of this contention.

It is difficult to review a book which contains page after page of factual detail. It is certainly a valuable contribution to the sociology of law, and anthropologists, sociologists, lawyers and historians will profit by reading it.

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**HOW SPLENDID** to find a scientist (or "natural philosopher," as the breed was called in more balanced times) attempting to explain the nature of man and the meaning of life, instead of leaving such a daunting task to poets, priests and politicians. Anyone concerned for the future of spaceship Earth, and for the pattern of life which the Earth supports (including that of *Homo sapiens sapiens*), must be convinced that the scientific method, which relies on the manipulation of demonstrable facts rather than the exercise of prejudices and received beliefs, offers the only hope of salvation.

As I. Z. Young says, very early on in *An Introduction to the Study of Man*: "It is a paradox that although we are still ignorant and feeble our chief problem is to learn to live with our power. We have learned how to destroy each other and even perhaps the whole earth. We have begun to understand our brains so that we can no longer rely on old beliefs to organize society, but we have not learned how to do it afresh. To spite of the urgency of this situation it seems likely that man will solve these problems piecemeal, as in the past, rather than by global planning. In any case he needs to find out all that he can about himself and the world if he is to survive."

The book is offered as a contribution to this desperately needed understanding. Its title may appear pretentious, as indeed it would be, headed a treatise by a priest, or a poet, or a politician. But Professor Young is none of these; he is, instead, an excellent scientist, and, like all truly gifted and knowledgeable scientists, he is a humble man, who sees himself small in the face of Creation. He is a Professor of Anatomy at University College London, and he is known chiefly for his investigations into the mechanisms of intelligence, using, of all things, octopuses as his principal subjects. He was elected a Fellow of the Royal Society because of an acumen and perspicacity and depth of learning which the scientific establishment found it impossible to ignore. He is now one of the pat-

riarchs of the academic world to which he so solidly belongs.

His preface begins: "This book arose out of lectures given to medical and dental students at the beginning of their studies." His title, therefore, is no more than an academic's label for a set of lecture-notes, plainly describing their theme and purpose. Far from being pretentious, it is a fairly flat description of the material in the book, which is an amalgam of hard information of a kind to be found in any standard textbook, and the commonplace Book of an outstanding contemporary biologist. And if that were all, there would be little left to say. But it is not. For the whole work is illuminated and sustained by the author's conviction that Man "needs to find out all that he can about himself and the world if he is to survive."

Professor Young tackles his task by reviewing a great part of the currently available information concerning human anatomy, biochemistry, physiology, and psychology. But within the book's forty-four sections and 700 pages there are also discussions on such topics as inheritance, evolution, aging, the regulation of populations, the nature of consciousness, and the measurement of intelligence. The treatment of his subject may fairly be described as comprehensive. There is, for example, a section devoted to the origin of life, which not only includes notes on the origin of our galaxy and the origin and composition of the Earth, but begins at the very beginning with a brief discussion of the general difficulties attending the study of origins: Problems of origin carry a peculiar intellectual status. They are of quite outstanding interest and yet in a sense they are insoluble. It can be argued

# What we need to know

**I. Z. YOUNG:**  
*An Introduction to the Study of Man*  
719pp. Clarendon Press: Oxford University Press. £5.

that at the past will never be repeated it will never be known what it contained. Yet this is one of those anthropocentric attitudes that seem self-evident but may be only a manifestation of our limited view of nature. We insist on our uniqueness, but if nature is a flux of reinforcements then in time it will repeat us.

This kind of thing may make for completeness, and certainly the deepest and fullest understanding of the nature of man must rest on a comprehension of the physical universe within which he evolved. Clearly, also, it is logical to precede a discussion on origins by a well-chosen remarks upon the intellectual limitations governing a consideration of origins. But the author's stern insistence upon starting each fresh topic at square one—of even further—and then relentlessly working his way through a tightly structured edifice of argument and evidence until he has "proved" the message he wishes to convey, is reminiscent of a Victorian sermon, and the danger is that it may produce a very similar effect. The technique may satisfy the author's own academic conscience, so that he can share with the preachers of a bygone age the feeling that he has thrown all his resources of learning and exposition into his missionary task. But it is all for nothing if the very weight of the attack leaves his hoped-for converts battered and bemused. And the urgent task is to spread the gospel of understanding fast and far.

Yet if Professor Young is not quite the popularizer he would like to be, the deficiency is fully made up by his publishers. *An Introduction to the Study of Man* is described by the blurb in terms which are brief and bare even by the standards of the Oxford University Press. Only 200 words long, it begins by stating: "There are many ways of approaching the study of Man. Professor Young believes that biological knowledge provides a useful framework to help us understand ourselves. What a weak statement! Professor Young knows that a wide and rapid

spread of biological knowledge is essential.

The blurb ends by claiming that "Professor Young's new book can be used as a text for a wide variety of university courses and will be of interest to all who wish to understand the scientific view of Man." This makes the book sound like a work fit only for examinees, and the kind of "leisurely" grishly who believe that "science" is a suitable diversion for gentlemen, to be savoured after the real business of the day is done.

*An Introduction to the Study of Man* has been almost totally unnoticed. Between them the author and publisher have seen to that. And yet it is a highly important book. In particular, it brings together subjects which are normally not thought of as proper companions. It makes a good deal of sense to discuss the origins of abstract art in a volume that also covers blood groups, because they are both aspects of the nature of the same animal—man. People generally just don't think that way. Professor Young has done so.

Here is the opening of his chapter on "Evidence of Early Art Forms and Religion", whose sub-heading is "The importance of art and ideology for survival."

There is no body of facts that yet enables us to understand the origin of aesthetic creation or religious beliefs and practices. Presumably both sorts of activity were somehow of assistance to Palaeolithic man in the business of getting a living.

Professor Young goes on to deny that such a view implies that the arts and "ceremonies of early man were no more than exercises designed to improve, for example, hunting techniques, or the military or domestic stability of a community. But then he spoils this apparent admission of the existence of matters which are purely of the spirit in his very next sentence:

Yet there is a case for saying that creation of new aesthetic forms, including those of worship, has been the most fundamentally productive of all forms of human activity. Whoever creates new artistic conventions has found methods of interchange between people about matters that were incommunicable before.

It is in this kind of substantial aside that Professor Young's book is unique and important. By suggest-

ing that paintings and prayer increase the coherence, and thus the strength, of a community, he attributes a survival value to aestheticism, and so links this kind of intellectual activity (which we believe is peculiar to man) directly with the other biological mechanisms formed in the evolutionary process, such as thumbs for picking things up.

Elsewhere Professor Young discusses the flint tools and weapons of the Stone Age, and suggests that the flint-flakers took a pride in their craft, and got a good deal of satisfaction from making a tool which not only worked well, but looked good into the bargain. Again, such a feeling of pride would have a survival value, since the man with the pattern in his brain which could produce this "rewarding" sensation would make better spears or arrowheads or bows than the indifferent churl in the cave over the hill. And so the tribe of the man with pride, would flourish and multiply, while the churl and his mob would fade away.

Professor Young doesn't quite get round to defining the nature of beauty, although he does state man's need to feel some pleasure in the shape and form of his surroundings. But his remarks on the biological value of pictures, prayer and good design do suggest that all things commonly seen, by man as bright and beautiful (like healthy babies; green hills; sun, sky and clouds; a noble woman with a smile on her face) may be things essential to the survival of the species, and therefore to be cherished.

Not only are there such stimulating thoughts to be found in *An Introduction to the Study of Man*, but also a rich scattering of epigrams:

Man's special genius is for co-operation. The Devil in us is not wholly useless. Man learns and teaches more than any other creature.

Even if the question of mind and body is not just one of words, it certainly requires careful use of them.

We are not fallen angels, but risen apes. So why has Professor Young's considerable work failed to attract the attention it deserves? The answer is simple. It isn't a book that people will read.

The jewels in Professor Young's work lie buried in a great mass of solid information of a kind that could well be left out because it can be found anywhere. There are even a table of the elements and a set of metric conversion tables.

Perhaps Professor Young will now try to distil the best of the wit and the wisdom from *An Introduction to the Study of Man*, bottling it in a smaller and more attractive container.

# The post-industrial man

**DENNIS GABOR:**  
*The Mature Society*  
208pp. Secker and Warburg. £2.75.

It is said of Descartes that as a boy he played the game of setting in front of himself a closed book, and trying to guess the argument by which was established the thesis announced in the title. In this little story lies a clue to his statements on "method" and more important, to his whole style. Dennis Gabor once had a similar game: starting with a desert island, to imagine the sequence of operations leading to some engineering device. After successfully playing variants on this game in professional life for many years, he has more recently inverted it: from the world the engineers have created, to get back to an (improved and genuine) natural state.

In "technological philosophy" as elsewhere, the inverse problem is more difficult than the direct. Too much is known of the initial conditions and the constraints to permit an aesthetically satisfying solution. Yet there is at the same time an awareness of our woeful ignorance of the nature and intensity of these determinants of the problem, and still worse of their interactions. Hence when practised well "futurology" is more demanding and hazardous than straight utopian thinking.

Professor Gabor is well qualified

for his unenviable task. So familiar with the world of hardware technology that he is in no danger of being taken in by its propaganda, he also has that valuable aid for interdisciplinary work, an expert in the family, in the person of his brother André Gabor, the economist. Of an age to have witnessed the fortunes of "the Soviet experiment" from the beginning, he shares none of the naive optimism about human nature of earlier social reformers and idealists.

Professor Gabor starts with man as he is, and tries to see whether and how piecemeal social engineering will improve him sufficiently to make the survival of civilization possible and for worthwhile. Recalling the sordid physical miseries and the spiritual horror of the long ages of poverty, he knows that a sudden passage to a post-industrial society could well lead to a lethal boredom and consequent moral and social collapse.

The achievement of "the mature society" is basically the task of creating mature individuals. These in turn have (for Professor Gabor) the qualities of someone who first absorbed the old Continental bourgeois-intellectual culture, was then toughened up in the English public-school style, and finally somewhere developed a sense of playfulness. Such men are, unfortunately, a minority, and are likely to remain so for

some time. The handling of the immature majority during a period when "the daily drug of hard work" becomes increasingly meaningless, and the improvement of their offspring, are for Professor Gabor the key problems.

He offers some mildly technocratic suggestions for raising individuals and jobs on scales of intellectual and ethical qualities, to secure a better match. For education of parents and children, he advocates full use of technology to achieve an intensity of impact of his humanistic message of man's place in the world. But it must not be thought that Professor Gabor believes in "technological fixes" for all problems. He has a very good chapter on "autonomous technology", that from a combination of individual gadget-worshipping and corporate vanity, has produced such abominations as the Americans' eco-ide in Vietnam, and our own Concorde.

Some critics will find Professor Gabor an inconsistent mixture of generally reactionary tendencies: an elitist in social philosophy, an opponent of material progress, and an admirer of drop-out communes. But for those who doubt whether the promise of civilization is adequately achieved by enabling everyone to fly to Majorca for his fish and chips, Professor Gabor offers insights and aphorisms worth having.

# The phosphate exiles

**MARTIN G. SILVERMAN:**  
*Disconcerting Issue*  
Meaning and Struggle in a Resettled Pacific Community.  
362pp. University of Chicago Press. £5.80.

The second in a series entitled "Symbolic Anthropology", this book by a Princeton anthropologist interprets a Pacific people's life-style through an analysis of their ideas and values. But since it is as much concerned with historical and sociological dimensions as with cultural (symbolic) systems, it is still manifestly a general ethnography. There is, nevertheless, rather more theoretical content than is usual in such works.

The dominant themes of the book are uncertainty and identity. For the Banabans, the indigenous inhabitants of Ocean Island in Micronesia, were subject to a degree of acculturation greater than most colonized peoples. European influence came in three typical forms: mission, government and commerce, the most devastating of which was the last. Beginning in 1900, Ocean Island (a massive phosphate deposit) was gouged out from beneath the Banabans' feet, and carried away in ships to be dusted over the fields of Australia and New Zealand. Both government and mission acted with the usual good intentions and lack of understanding. Both, at times, acted as a buffer between Banabans and Big Business; more often they succumbed to the phosphate mining company's more powerful lobby. That none of these forces was internally consistent in aims and approach (particularly the differing

missionary sects) only added to the confusion of the Banabans. The wonder, perhaps, is that the culture survived at all following the physical break-up of the community during the Second World War. In 1945, however, their island now little more than a shell, the Banabans were resettled 1,600 miles away on Rabi Island in the Fijian group.

As absentee landlords of Ocean Island, the Banabans' economic position is not their main worry. Their major problem is rather one of coming to terms with themselves, the government, and their two islands. In short, they are heavily engaged in the painful process of forging a new cultural identity—a process which the author describes in terms of "testing out". In this process, the Ocean Island homeland provides an indigenous model of almost mythic quality; while the external model of Nauru gives shape to Banaban aspirations for political autonomy. In such a context the "kinship system" could hardly be a distinct and viable entity amenable to tidy functional analysis. Rather, it is a means by which individuals try to locate themselves in space and time, and through which the community tries to pick up the bits and pieces of a shattered identity.

The disconcerting issue of the title, then, is at least threefold, relating to kinship, politics and anthropological theory. For if "the Banabans have been a people in search of a paradigm" so, one might add, has Martin Silverman. He hypothesizes a formula that dominates the emergent hierarchy of Banaban values: "Maximize your options", or "Keep your options open." These principles inform

Banaban behaviour in their current situation of uncertainty; but they also characterize the author's style of analysis. Finding traditional anthropological constructs inadequate, he has cast his theoretical net far and wide. In doing so he has caught, and developed, some useful ideas: notably Parsonian concepts of "differentiation" and "integration" for his general theory of change, and Schneider's distinction between "identity" and "code for conduct" in his analysis of Banaban cultural categories. But one feels that the casting should have been tried earlier and the catch sorted in private. That way the reader might have been spared some of the confusion which results from the author's own analytical "testing out" process.

The major failing of the book is that it spreads its material and theoretical content too far. In consequence it loses in depth, though the points of departure for that depth are there—in the symbolic complexes of land and blood, the ever-present (but usually implicit) use of dialectic, "testing out", and the "maximization of options". The author has amply demonstrated his analytical and descriptive skills; he has a flair for metaphor which is paradoxically all too rare in ethnographers. With a narrower focus, a less ambitious mandate, he could have produced a more readable work of lucidity and elegance.

Finally, it is a pity that the author did not maximize one option which was surely open to him—the "reality" of the Banabans would have been enhanced for the reader by the inclusion of a few photographs.



Few great Victorian thinkers caused more bafflement among their contemporaries than Frederick Denison Maurice, theologian, educationist, Christian Socialist. For some forty years, spanning the middle decades of the nineteenth century, he challenged its religious and social complacencies in book after book and sermon after sermon. His brother-in-law, Archdeacon Hare, once his tutor at Cambridge, considered him the greatest mind since Plato.

Benjamin Jowett thought him misty and confused and none of his writings worth reading. "But he was a great man and a disinterested nature, and he always stood by anyone who appeared to be oppressed," R. W. Church, an Oxonian of a different school, commented: "There is something in Maurice and his master Coleridge, which awakens thought in me more than any other writings almost: with all their imputed mysticism they seem to me to say plain things as often as most people." John Stuart Mill considered him decidedly superior to Coleridge in purely intellectual power but thought that there was more intellectual power wasted in Maurice than in any other of his contemporaries. James Martineau, perhaps the most distinguished Unitarian of the period, said finally to say of him that "for consistency and completeness of thought and precision in the use of language it would be difficult to find his superior among living theologians." A flat contradiction of Leslie Stephen's view. "For Stephen," says his biographer, Lord Annan,

Maurice was anathema. . . . He portrayed him as intricate, fudgy, bawling, a "melancholy instance of the way in which a fine intellect may run to waste in the fruitless endeavour to force new truth into the old mould. . . . Stephen even went so far as to break his own rule of obtaining biographers sympathetic to their subject in the DNB and himself wrote Maurice's life—which C. B. Raven rightly condemns. Why was he so incensed?

Annan's short answer is that "it was the epistemological tangle, the perversion by Maurice of the meaning of meaning, which appalled Stephen." Where does the truth lie and, if it can be found, what value has it for us in the last decades of the twentieth century?

Interest in Maurice has never died out, partly because his unique contribution to adult education in the Working Men's College has grown from strength to strength, and despite changing conditions has never lost the character Maurice imparted to it; partly because the moral influence of Christian Socialism has had a wider and longer-reaching effect than its small-scale practical achievement warranted, and for this Maurice, Kingsley and Ludlow especially deserve credit, particularly for pioneering the approach which made it feasible for English socialists to avoid the anti-christianism of the Continent; finally because, at intervals since his day, theologians have found themselves fascinated by the power of Maurice's thought and have sought to clarify it.

There is now an opportunity to take a fresh look at Maurice in the light of three books marking the centenary of his death. The most important of these is the reprint of the big two-volume *Life* by Maurice's elder son, which is based almost entirely on his correspondence: these hundreds of letters dealing with the deep problems which were perpetually occupying his mind (Maurice was a man without light relief) to correspondents ranging from his immediate family to friends and fellow scholars open ways into his thought, which seems more vivid and spontaneous than his formal writings and is certainly easier and more rewarding for the non-specialist to follow. One can only be immensely grateful for this reprint, while deploring its disastrously high price, since it depicts Maurice at first hand and not what others have made of him. And though it may be true that what others make of a great man may in the end weigh more in terms of his influence, yet it one wants to know

A drawing of F. D. Maurice by Samuel Laurence—reproduced from Elaine Kuyf's *A History of Queen's College, London 1848-1972* (to be published by Chatto and Windus on June 29) by permission of Queen's College.

## The search for a Christian society

FREDERICK MAURICE (Editor):  
*The Life of Frederick Denison Maurice*  
Volume 1, 552p  
Volume 11, 712pp  
Gregg International. £16 the set.

OLIVE J. BROSE:  
*Frederick Denison Maurice*  
308pp. Athens, Ohio: Ohio University Press. \$12.50.  
FRANK MAULDIN McCLAIN:  
*Maurice: Man and Moralist*  
206pp. SPCK. £2.80.

him one must place oneself as nearly as possible in his orbit—and this is exactly what Olive J. Brose's book enables one to do. Olive Brose, of course, is one of the others, but to say this is in no way to minimize the value of her book, for it is excellent. Her rich background knowledge provides a setting which is essential, but too often deficient among contemporary scholars, and her analysis of Maurice's tangled thought shows, with many important quotations from his writings, that however unsystematic he is—not surprisingly, since he loathed systems—his ideas do in fact radiate from an all-governing centre. One feels little hesitation in taking Dr Brose as a guide.

It is another matter with Frank Mauldin McClain. His theme is the derivation by Maurice of his ethical and theological beliefs from his personal relationships. This is an interesting new departure. Books on Maurice have tended to deal with him almost exclusively from an intellectual point of view. And an analysis such as Dr McClain offers can be illuminating, and certainly has its fascination. Personal relationships may well affect the production of a man's thought, and though it may be true that what others make of a great man may in the end weigh more in terms of his influence, yet it one wants to know

thinking is based on the prime importance of persons. But in the last resort psychological analysis is irrelevant and distracting; the thought alone. Incidentally Dr McClain has some strange lapses which cannot be overlooked. Why in his genealogy of the Maurice family omit several of Maurice's great-grandchildren? And what can one make of the comment on Maurice's wife that his "relationship with Annie Barton was fortuitous" when he goes on to say that "the ease of their correspondence, the regular interchange of thoughts . . . provided Maurice with a ready, loyal, supportive yet critical audience."

There are a number of other mistakes assignable to careless revision or proof-reading. All told, however, this is a stimulating book with a first-class bibliography of Maurice's own writings, very full notes, but an index almost useless for working purposes. Maurice was born in 1805, fifth in a family of ten, all girls but for one other boy who died as a small child. His father, Michael, was a Unitarian preacher, more tolerant than his convictions strong enough to forgo the inheritance of an estate in Essex for the sake of his Non-Conformity. He kept a school, and until Frederick went up to Cambridge in 1823

he was educated at home. Dr McClain emphasizes the psychological stresses of his strange childhood and adolescence. He could hardly escape the "monstrous regiment of women," some of them violently neurotic. He developed a compulsive need to care for sick women, and as a young man nursed his sister Emma, who died in 1831, and later his sister Priscilla, who kept house for him until his marriage in 1837 and again after the death of his wife in 1845. Annie was the sister-in-law of Maurice's close Cambridge friend John Sterling, who along with his wife was a prey to "consumption", and it looks as if Annie had contracted the disease through nursing the Sterlings. Her death was a tragedy for Maurice, if only because she generated light and humour in contrast to his other close feminine contacts. Her remark, "Mr Carlyle has been here talking for four hours in praise of silence," shows her quality. For comparison, we have "Sickness, a vocation," discussed by Priscilla in one of her six books on sickness and death. Finally, in 1849, Maurice married Georgina Hare, another confirmed invalid, described by her somewhat malicious half-nephew Augustus as a "sickly, discontented, petulant woman".

All in all, as child and adolescent, Maurice was at the opposite pole from Walter Bagehot's "common English boy, the small, apple-eating animal whom we know". And the hotheaded intensity of his life was exacerbated by the religious rifts which appear in his family. One by one, the women went over to the Church of England, choosing its Evangelical, Calvinistic wing. They refused to attend the services held by the master of the house, and generally the tension became so great that they conducted their religious discussions by correspondence. Poor Mrs. Maurice took nearly a year before she could bring herself to present to her husband the paper setting out why she could not accept his ministrations. Wounded especially by this artificial resort to letter-writing, Michael Maurice finally ordered that the younger children, including Frederick, must attend his chapel until they were old enough to produce their own reasons for not doing so. These dissensions might understandably have produced a backlash of cynical atheism in a sensitive boy; instead they bore fruit in Maurice's loathing of sectarian fighting and his craving for unity in Christ, which would eventually become one of his great constructive themes.

Shy, introspective, and unused to society as he was when he went up to Cambridge, he rapidly became one of the most forceful members of the famous Apostles Club. Interestingly enough, he felt in later years that the intellectual give-and-take with his undergraduate peers had broadened and deepened his mind more than the teaching of any of his tutors, including Julius Hare. He had read Coleridge before he went to Cambridge, but it must have been in discussions at Cambridge that Coleridge's writings took hold of his mind and planted these ideas of the nature of Church and State which would grow in Maurice's thought, tying in with his ideal of unity until he had made them completely and almost idiosyncratically his own.

He got a First in Civil Law, but came down without taking his degree since he would not subscribe the Thirty-Nine Articles. He then read law in London but became interested in literary journalism, and in 1828 was appointed editor of *The Athenaeum*, and some friends having bought the new journal from its founder, Dr Brose quotes R. C. Trench exulting that Maurice and that gallant band of Platonist Wordsworthians—Coleridgean—anti-Utilitarians still keep with undivided sway at the helm, and that the journal is "entirely written by Apostles". At the same time, Maurice began a novel, *Estimate Conway*, one of that curious class of Victorian fiction like Newman's *Loss and Gain* or Froude's *Nemesis of Faith*, written for the sole purpose of expressing the author's own spiritual searchings. For Maurice was undergoing a process of "conversion",

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TLS

71st Year 23 JUNE 1972 No. 3,669

## Viewpoint

BY W. J. WEATHERBY

ELECTION YEAR in the United States resembles one of the great serials of Dickens. Our television sets have become our *Household Words*. From the first primary in March, through the summer conventions, all the way to election day in November, we switch on television day after day anticipating drama, even melodrama, and we are seldom disappointed.

It is still only June and already we have witnessed the rise and fall of three would-be presidents (two can no longer use the word "heroes" as readily as Dickens did)—Lindsay, Muskie, and Jackson. The scene of Muskie weeping in the snow was truly Dickensian. *A Christmas Carol* came to mind, though much of the public response was more like second-rate half-on-the-cheat Hemingway, and when the news that Wallace had been shot began to circulate, I was reminded of Victorian readers passing on the news that Steerforth was dead. Or Bill Sykes.

Even an eternal optimist like Hubert Humphrey (surely a character straight out of *The Pickwick Papers*) now seems to speak with an uncharacteristic fatalism, like someone in *Bleak House*, say, who feels that he has little control over the drama he is in. Gone for good apparently is the old sense of security in public life that Humphrey's generation used to feel, when you were fairly sure what might happen and presidential contenders usually died in bed. If you talk to the old politicians—such nostalgic figures today—they make the old way of public life seem almost like a ritual that had already been rehearsed, with all the safe logic usually found only in hindsight. (And from this side, British political life still has this safe appearance, with the exception of course of anything to do with Northern Ireland.)

Now the United States of the present seems like another country. The candidates are as insecure as characters in good novels, anything could happen, life is suspense all the way, and somewhere you feel there must be an author pulling the strings. What will he—some will insist it's He—decide on next to excite his audience out of its spiritual lethargy? Will anyone else get shot? Part of us dreads the idea, and part of us, I'm afraid, simply yearns for more excitement. We look to the last Kennedy, half dreading he might yet get drafted by the Democrats, half hoping he will. Just as the politicians have been stripped of their old-fashioned sense of security (and the teams of Secret Service men given to each candidate are no substitute), so we are beginning to lose our sense of separation between reality and imagination, what is fact and what is fiction.

Reality on television, mixed in with soap operas, late-night movies, the fantasy life of commercials, becomes a Big Show, Wallace shot before our eyes becomes a Dramatic Event, a Highlight of the election serial. No wonder people passing on the news seemed schizophrenic—split between the way they thought they should respond (No Man is an Island) and an immortal sense of excitement, of glee, at the latest twist in the serial. It was high level voyeurism shocking

us out of our routine much more effectively even than the basketball playoffs, the romantic return of Willie Mays to New York baseball, the latest Black boxers (sexual symbols) battling up each other in the ring. They are only one-day wonders, but the serial goes on and on. We ask ourselves the great crude questions—Will someone else get shot? Will Teddy run?—as if we are merely at the end of one instalment waiting impatiently for the answers in the next.

You might assume a country with such melodramatic politics would have a great political literature. I don't mean political memoirs—they are endless, particularly with so many politicians trying to justify their old Vietnam policies. I don't mean journalistic exposés—they are endless, too. Or journalistic novels, using a little surface behind-the-scenes expertise to put over a conventional plot and two-dimensional people. Or political satires carving up LBJ or Nixon by making a collage of their own words and deeds. I mean *creative literature*, going down into the depths or up into the skies to bring back a work of art in the form of a first-rate political novel. One looks in vain. Even such a self-consciously political writer as Mailer turns to non-fiction to cover politics. Baldwin, who like all Black writers prides himself on understanding the White power structure, writes essays. Bellow, Nabokov, you name them, they're away somewhere in ivory towers, telling you that if they put the storm in a teacup, it doesn't matter that it's in a teacup, it tells you about the storm. But with the non-stop serial on television, showing us the storm over the whole country, we're no longer satisfied with the teacup theory. Or the idea, to put it another way, that if you describe the politics of one office correctly, it can symbolize the politics of the whole country: The office manager (for whom the writer once used to work) can symbolize Nixon, the upstairs first salesman Humphrey, the cashier McGovern . . . and the writer himself maybe Kennedy. It won't work any more. We want the whole storm, the national picture. Would *War and Peace* satisfy us if we had already seen Napoleon on television, if we had seen the Retreat from Moscow, as we have seen Wallace, Vietnam. . . . would Tolstoy have written it that way, or would he—like our contemporaries—have turned despairingly to non-fiction?

All we know for sure is that the shocking 1960s produced no first-rate political novels. None came out of the civil Rights movement. To understand Wallace—the contemporary White South—you have to go back to Faulkner's *Shopes* trilogy or Robert Penn Warren's old novel *All the King's Men* about Huey Long, a politician who got shot in the old days when such events were extraordinary, the news of whose death travelled more slowly by radio and newspapers, so that it seemed much more remote and already part of the past, and therefore seemed to have

the right proportions. It was Warren's novel that finally brought the event up close. Nowadays, if a public figure doesn't die on television, it seems not to have died properly: it's like dying in the audience instead of up there on stage. And perhaps in the end, it's just as well; if there are to be no novels to bring it really up close. How many times has Bobby Kennedy died for us on television, on radio, in newspapers, in magazines, and in countless books of memoirs? Yet I for one, who have seen, heard, and read most of it, have no clear picture of Kennedy beyond the public front. When he talked to a favoured writer about Camus, was this part of the real man or a part of the image being prepared for our television serial? We can't know until some writer tells us in a form that will take the truth, the whole truth.

Various reasons are given for reality's failure to inspire comparable literature. Some publishers argue it's simply the law of supply and demand: Americans don't read political novels—or at least good ones—so Americans don't write them. This seems too easy. *All the King's Men* was a bestseller, and twenty-five years later is still in print. One or two reviewers have suggested, the downgrading of fiction has made writers do their political work in non-fiction. This again seems too easy. The liberal laws prevent you from telling the whole story even if you know it. You need imaginative freedom to describe fully, to explain, and finally to relate the isolated event, the individual life, to the rest of us in society. The reason I find more convincing is that writers do not know enough about the detail of political life, at least on the higher levels of power, to write about it with enough confidence in their knowledge and understanding. I think it's true that of all the major American writers today, only Mailer has had any experience of running for office, and then only for mayor of a city, and as an outsider candidate more in touch with the voters than the party machine boys in the smoke-filled back rooms. Mailer has tried to write about the paranoid atmosphere of contemporary American politics in a couple of novels and films, but when it comes to the detailed picture, he goes back to non-fiction, the interview, the description, the reflective essay, and when the former mayoral candidate gets to the White House level, he's not beyond being impressed by the sheer power of it all and the charm of one of our television serial stars . . . or at least he wasn't in the days of John Kennedy, perhaps the greatest television star of them all.

What we tend to get then are novels like *Advice and Consent* by a former reporter in Congress. It goes up to Senate and White House level, it has a convincing surface, but once you get below it, all that's left are a conventional plot and cardboard characters, presumably to fill in the great areas of ignorance. The viewpoint is safe and conservative (no wonder it was a best seller with book-buying Middle America), but it didn't check with the picture we get even from our television serial, where political life was so much wilder and more aggressive. What we need are writers to take what is happening out of the realm of the Big Show and make reality seem real again, to educate us rather than just exciting us so that in the end—on voting day—we don't fall back on our fears and follow all the safe brainwashing lines. Law and Order and the rest of the commercials used in the selling of the presidency.

The betting at present is on Nixon versus McGovern, which is supposed to be the way Nixon wants it, because he believes (according to our television serial anyway) that McGovern can be made to seem too far out—almost a socialist for God's sake—to Middle America. McGovern, however, is much more of a pragmatist and much less of a hero (that dirty Dickensian word) than he is given credit for, and Nixon may find it much more difficult than he supposes to trap McGovern in an unpopular radical corner. (Humphrey is trying it at present in the remaining primaries, and it doesn't seem to be working as McGovern plays after him methodically answering every charge.) There

is also an immense frustration withing under the surface of the country typified by the support for Wallace, which is hardly likely to help Nixon. A fight between two pragmatists, both experts at shadow boxing—that hardly promises an exciting end to our television serial; but nowadays, as the old pro-politicians like to say, you never know what's going to happen until it's happened, and maybe it'll be a fight between different opponents, maybe the referee will stop the fight, or maybe the crowd will invade the ring.

Who knows in this age of frustration? Perhaps much of it is simply due to depending on television for our excitement. If only writers could restore to us a sense of the excitement of ourselves. But this may no longer be possible: our television voyeurism, turning politics and reality as a whole into soap opera, may reflect the growing abstraction of government, of power. And that takes us full circle back to asking writers to break down the abstractions for us. The *Pentagon Papers* suggests how hard that is. Although influential people like Senator Proxmire have said that, in the interests of open government, the Pentagon itself should have published the papers, it still looks as though the Nixon Administration intends to pursue the Ellsberg case to the bitter end and make an example of him if possible. Politicians are really scared of the prospect of being, as *Death of a Salesman* puts it, wholly known. One imagines that nowadays, even in a democracy like the United States, creative writers need the technological equipment of super spies to get the necessary experience for their imaginations to feed on. Future Telsos perhaps will have to bug the offices of future Napoleons before they will have the self-confidence to make a novel of war and peace instead of a long piece of New Journalism or a commentary on our never-ending serial.

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Brigid Brophy, *The Listener* (reviewing *Cicero* by D. R. Shackleton Bailey)

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# To the Editor

## PLR

Sir—With the publication of the Working Party Report on the Public Lending Right it is slowly becoming clear that a majority of MPs support the authors and publishers in their off-repeated claim that society is getting too good a bargain at their expense. Their case appears to be impressive, but I for one would feel happier if I knew that, later on, MPs had in mind the benefits now enjoyed by authors and publishers through the goodwill of the British community.

Benefits I would mention are: Books exempt from Purchase Tax (and then Value Added Tax); Generous copyright provisions (life plus fifty years);

Income Tax concessions to authors; Net Book Agreement and Resale Price Maintenance (latter recently lost in Australia).

There may be other concessions of which I am not aware. Nevertheless, perhaps on these points alone some might say that authors and publishers are repaying their debt to society by being deprived of PLR. I merely say that the matter should not be settled by reference to one side of the case only. Society, too, has its rights and the MPs are being asked to ensure that they will not be overlooked.

K. D. MILLER,  
City Librarian, Stoke-on-Trent City Libraries, Bethesda Street, Stoke-on-Trent ST1 3RS.

## Films and Literature

Sir—Since the TLS has devoted quite a lot of space recently to the relationship of film to literature, you may like to know that the latest remake of Plautus' *Madame Bovary* is currently being shown in Manchester under the title of *Playing the Game or Leave the Bed*. It is appearing as a B feature, supporting *Naughty Nuts*.

DEREK BRISTOW  
386 Downall Green Road, North Ashton, near Wigan, Lancashire.

## Dylan Thomas

Sir—The Trustees of the copyrights of the late Dylan Thomas would be glad to learn of any tapes that may be available of performances by Dylan Thomas of his own works or the works of others. A fee would be paid for the right of access to such tapes with a view to reproduction if they were found to be in fact suitable for that purpose.

I should be grateful if anyone who holds such tapes would communicate with me, c/o David Higham Associates Ltd, 5-8 Lower John Street, Golden Square, London W1R 4JA.

DAVID HIGHAM  
For the Trustees of the Copyrights for the late Dylan Thomas, 12 Keats Grove, London NW3.

Sir—Your readers may be interested in the following suggestion that a Miltonic source might best explain the crux in Dylan Thomas's fourth religious sonnet, "What is the metre of the dictionary?" The fifth line of this poem—"Which sixth of wind blew out the burning gentry?"—is one of a series of riddling, crudely reductive questions addressed to the Virgin and Infant, and asked by reporter-like representatives of the modern world who then have pictures "snapped" of the Nativity as though of a sensational story. This particular question is addressed to the Infant ("unable to speak"), for the parentheses immediately preceding the following line are clearly meant to represent the Infant's unspoken asides. It is, moreover, the last question addressed specifically to the Infant since the scornful and indicative questions that follow—

What of a bambino man among your acres?  
Counsel the boyards for a crooked boy?

—are obviously directed at the Virgin. Yet not only the precise force of the question addressed to the Infant, but also its dramatic significance in occurring at this particular point of the sonnet, has so far gone unrecognized; and no satisfactory explanation exists of the puzzling fraction it contains.

There are, indeed, two problems: who are the "burning gentry" and, this precise fraction is related to the traditional concept of the wind as a twelve-unit poem (which occurs in three other poems by Thomas, "I, in

my intricate image" "Foster the light" and "Ceremony after a Fire Raid" in 1971). Professor H. H. Kleinman in his illuminating *The Religious Sonnets of Dylan Thomas* (Berkeley and Los Angeles, 1963) admits that he does not know "why Thomas chooses one-sixth of wind" and he at first suggests that the "burning gentry" may refer to the inhabitants of Sodom and Gomorrah—though he subsequently qualifies this suggestion by another which carries us a good deal further towards the real meaning, and precise source, of Thomas's crux:

Rather do I think that they may be the damned angels blown out, expelled, as Milton describes them, plummeting to perdition;

Hurled headlong flaming from the ethereal sky,  
With hideous ruin and combustion.

(*Paradise Lost*, I, 44-45)

And Professor Kleinman adds: "Perhaps the interrogators in the fourth sonnet believe that the child can offer information about the windy ordinance of heaven, or at least a fraction thereof." A better "source" or explanation is provided, we suggest, by Milton's description in Book 1 of Satan's action in his right hand/grasping, ten thousand Thunders") in expelling the rebel angels from heaven:

Yet half his strength he put not forth,  
His Thunder in mid Volley, for he meant  
Not to destroy, but root them out of Heaven.  
(833-5)

If the godhead controlled the windy ordinance of heaven, then it may be concluded, notwithstanding Milton's own conception of the divinity and his freeword, that Thomas was prepared to reckon "half" of one part of a tripartite godhead as one-sixth.

Thomas's interest in Milton was early and lasting: though as poet he was always reluctant to speak of his "sources", most critics, even so, make tentative acknowledgment of Miltonic influence. The most compelling reason, however, for suggesting the allusion to Book VI is that it explains the force of Thomas's puzzling question at such a dramatically significant point of the sonnet. Previously the inquirers have been asking about the Father without receiving any answers to their questions. And so with mounting incredulity they make oblique reference to the Son's former exploits: can this indeed be the one who formerly drove out the rebel angels so decisively and combatively from heaven? Only sensational proof, some sign of the Son's power, will now convince these hard-headed sceptics of the truth of the paradox before them. Since, however, no such sign is forthcoming, they proceed to address the Virgin with obscenity and scorn.

D. R. EVANS,  
D. H. ARDREY,  
Department of English, University of New England, Armidale, New South Wales, Australia.

## Book Subscription Lists

Sir—The letter of F. J. G. Robinson and P. J. Wallis (May 5) deserves further comment. The lists of subscribers usually included in pre-1800 books are important for many reasons. One of the most interesting is the part they play in determining the sources of literary patronage during the eighteenth century. As Renaissance-style munificence declined (it was never very great in England), authors turned increasingly to publication by subscription, which is a form of literary patronage. It amounts to distributing the costs of publication of an expensive work, which at one time might have been assumed by a single generous patron, among a great number of interested supporters. Patrons of literature like Petrarch or Cardinal Borromeo were rare in eighteenth-century England, and the number of writers requiring support ever-growing; subscription publication was a natural method for replacing old-style patronage. As early as 1705, we find George Hickes describing the numerous subscribers to his *Linguae Veterum Septentrionalium Thesaurus* (1703-05) as his "Patrons" (factor is the usual Latin word for "patron").

Later in the century a more interesting phenomenon developed which was usually documented from book subscription lists. This is the subscription, by a single person, for multiple copies of a book, a form of concentrated support by individuals who in an earlier period would have been recognized as

patrons of literature but whose patronage in the eighteenth century has been relatively unnoticed. By 1730, for example, the subscription edition of Thomas's *The Seasons* lists more than a dozen people who subscribed multiple copies. That is, these people subscribed more than the price of a single copy of the book and, as an interesting kind of snob appeal, are listed as large contributors. Sometimes this sort of generosity could be carried to great lengths. According to the subscription list in Viscount Combury's *The Minutes* (1758), a mere twenty-six subscribers accounted for 784 copies of this unmemorable play, an average of thirty copies each.

One person took 120, another eighty copies (Professor Allen T. Hazen pointed out this book to me). And many other books published by subscription had multiple subscribers, though sometimes these must have been booksellers who were buying for stock. The existence of multiple book subscriptions suggests that during a period when direct support by wealthy patrons for individual writers was declining considerably, a working substitute for the old-fashioned patronage came into existence. Precisely how widespread this type of patronage remains to be seen, but the Robinson-Wallis *Handlist* will now make it possible for us to find out. The use of a computer to analyse the lists will doubtless enable us to discover other things as well, such as the number of subscribers for English books on the Continent and in America, the identity of important collectors, the movement of books from London to provincial England.

Scholars have always been aware of the better-known authors who received individual literary patronage in the eighteenth century. But a list of the most active patrons has never been compiled. A prosopography of patrons would be invaluable, but it cannot be obtained from conventional sources like the DNB or most contemporary biographies, since these works tend to pay scant attention to the interest of the titled and the wealthy in supporting literature. From a thorough search of the century's book subscription lists, we should be able to enlarge our knowledge of this important but generally neglected subject.

PAUL J. KORSHIN,  
309 Laymer Court, London W6.

## Tennysoniana

Sir—May I offer to readers of Tennysonian some scraps that emerge during preparation of a biography of his friend James Knowles?

"The Lord has grown as commonplace" (Christopher Ricks: "Written c. 1874"; a copy in Knowles's hand, without "He" at end of line three, and with "A.T.—Copied out of the MS Book of Garth, &c. The Hollies, July 7, 1872/J.T.K." in Knowles's papers. That is, just before Garth and Lyette went to the printer in July, 1872. Knowles was allowed to copy down this short, separate poem, which then remained in manuscript.

"Old ghosts whose day was done ere mine began" (Ricks: "Written 1884 (?)"; as preface to *Becket*, latter begun December, 1876) and "The Battle of Brunanburh" (based on Hallam Tennyson's prose translation published by Knowles in the November, 1876, *Contemporary Review*, and dated "probably 1876-77"). Knowles to Tennyson, January 6, 1877 (Lincoln), requesting lyrics for the opening number of the *Nineteenth Century*. "Might I by any possibility for instance have the 'Old Ghosts'—or your trochaic 'Brunanburh'?" That is, Knowles must have seen both poems at Alton in December, 1876. And a light-hearted footnote emerges from an entry in the Tennyson family journal at Lincoln, for October, 1868, when Mrs Tennyson and Miss Thackeray consulted Knowles in his architectural capacity on their (apparently

abortive) plans for "a house & a restaurant kitchen for poor ladies." This planable class of being... A shakespearian line on our Ladies Home" very likely "Home is home, though never so homely; And a baronet, though never so comely" (how horrible of him!).

FRISCILLA METCALFE,  
13 Elysage Road, London SW18 2HW.

## Murder in the Abbey

Sir—An attempt is being made in ecclesiastical circles to sabotage T. S. Eliot's reputation as a poet. In a booklet sold by the Westminster Abbey bookshop, *Guide to Poets Corner*, Canon Adam Fox ("I remember after Tennyson died...") writes:

We all ask ourselves about T. S. Eliot, who enjoyed a great vogue but is now rather fading from esteem amongst the young. In sixty years, perhaps people will be asking again: "What is all this about old Eliot?" Will they have any time for him then? I can't believe it.

For the wound inflicted by the venerable Canon, Mr. William Luckin premisses the fact: "It may well be that his reputation will last longer than his poetry." In his later poetry there was, quite simply, too much thinking—"a charge that is unlikely to be made against the contributors to this (quite simply) awful guidebook."

JOHN WHITEHEAD,  
The Coach House, Shoreham, Kent.

## Hardy Ghost

Sir—Professor Bailey in his recent handbook on Hardy's poetry writes as follows of the sixth stanza of *Wessex Heights*: "Hardy's sonnet suggests that this ghost represents Hardy's son by Tiphynia Sparks on his way to or from Bristol" (page 279). Had the manuscript of *Satires of Circumstances* in the Dorset County Museum been consulted, the suggestion would surely not have been made. It is clear from the manuscript that the line in question originally read: "There is one in the railway-train whenever I do not want her there." "Her there" has been deleted by Hardy and replaced by "it near", but its initial presence is surely enough to invalidate the speculation that links Ruddy in that particular train.

Perhaps Tiphynia's ghost had heard a guess at the identity of "her"?

KEITH WILSON,  
10 Canterbury Close, Cambridge.

## 'Mansfield Park'

Sir—Any reader of *Mansfield Park* would agree that Jane Austen disapproves of her characters' decision to act *Lovers Vows*, but there is a certain amount of critical disagreement about the grounds for her disapproval. One view which seems to command considerable following is the one first put forward by Lionel Trilling, that Jane Austen's attitude is based on a belief that acting itself, the very assuming of a part, is immoral. The obvious objection to this view, that the Austen family themselves went in for theatricals, is countered by A. Walton Litz's argument that Jane Austen was convinced by this very experience that "imitation" was something to be avoided as dangerous to personal integrity.

There is, however, one tiny piece of biographical information, not so far as I know referred to by any of her biographers, which suggests that her moral objections to acting a part (if indeed she had any) were not sufficiently profound to influence her own conduct. In 1898 the novelist Charlotte M. Yonge published a book called *John Keble's Parish*, and in describing Sir William

Heathcote, Keble's patron and the major friend of his family, the following passage occurs: "His mother was Elizabeth, daughter of Lordess Bigg, widow of the late Lord Bigg, the same countess who was early left a widow, and who bred up her only son, with the greatest care. She lived chiefly at Winchester, and it may be interesting to know that her son remembered her as a Twelfth-day party when he was a child, and assumed the part of the great spirit."

There seems to be no reason to doubt the truth of this statement. The Austen's friendship with the late Lordess Bigg, widow of the late Lord Bigg, the same countess who was early left a widow, and who bred up her only son, with the greatest care. She lived chiefly at Winchester, and it may be interesting to know that her son remembered her as a Twelfth-day party when he was a child, and assumed the part of the great spirit."

I was happy to hear that, in Anna's case, that a ball at Mansfield was once more made up of it is called a child's ball, and was its beginning at least, but I will probably swell into something this and take place between the Twelfth-day.

The postscript to her next letter, dated January 10, 1899, suggests that she may have attended it. The Mansfield ball was a small thing than I expected, but I was made Anna very happy. At her age it would not have done for me.

If this is the party Sir William collected (and since he was only ten then he was likely to be remembering this or some later occasion), we can accept the fact that only two years before she began *Mansfield Park* Jane Austen was prepared to "act a part" had to amateur theatricals at this time that it involved "imitation" or "role playing."

EILEEN JORDAN,  
30 McCaul Street, Torquay, Devon, England.

## Dreyfusard

Sir, May I make a small contribution to the correspondence about the connection of "Dreyfusard"? It arises from an anecdote I heard from the Rev. R. P. Longden in Christ Church, 1936. He had called on the famous French archaeologist and anthropologist Diodorus and found there a student who was speaking of the notorious Glorvill fakes; to Longden's surprise Diodorus cut the student short and sent him away. When they were in London, Diodorus ventured the opinion that there were in fact serious grounds for doubting the genuineness of the supposed Glorvill texts; he was asked by the student to produce the Glorvill fakes; he said Glorvill fakes were Dreyfusard; he said Glorvill fakes were Dreyfusard; he said Glorvill fakes were Dreyfusard.

Clearly, therefore, in the mid-1930s Dreyfusard could be as much as a title of honour.

DAVID HUNT,  
British Embassy, Brasilia.

In our review of Rodney Needham's *Rethinking Kinship and Marriage* (June 9), the author of the paper "Sister's Child as Plant" should have been given as James J. Fox, not Rod Fox.

*Mansfield and the Honourable Company* by George Pottinger, reviewed here on June 2, is published by Secker Academic Press and distributed by Chatto and Windus.

# John Clare: A Life J.W. and Anne Tibble Foreword by Geoffrey Grigson

In this second edition of JOHN CLARE all information has been checked from the original manuscripts and the final four chapters have been rewritten in the lights of new manuscripts acquired since 1932.

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Dr Brose lays great emphasis on this as the major crisis of his life, and thinks that it supplied a framework for all his future beliefs and attitudes, a framework which was never again altered. At any rate, Maurice accepted that a passionate belief in the Trinity God of the Christian faith was the foundation of his belief. And love could be expressed only through persons. God's love for men was expressed in Fatherhood and mediated to them through the Sonship of Christ their universal Brother and Lord. The function of the Holy Spirit was an indwelling guidance. The Kingdom of Heaven was Christ's Kingdom, established here and now, but needing the response of all men to its full realization. It was expressed communally through the interaction of the Church, in particular national Churches with traditional human societies. But all available to all mankind. Much later, writing to Erskine, Maurice wrote of "the task which God has given me that I am to perform for His Church, that of testifying that the grace of God has appeared to all men." The present Archbishop of Canterbury has summed up Maurice's belief: "He viewed the Church not only as the home of the redeemed, but as the sign that God had redeemed the whole human race and that the whole human race was potentially in Christ."

This is a position which in one form or another has today gained the most ground. Dr McLean reminds us, for instance, that Karl Rahner has written that "God deals with the whole of mankind as a single unit, so that, since the time of Christ, every human being in the world has been born as a member of a race which in the sight of God is actually redeemed." But in Maurice's day, his view was revolutionary and, as the years went on and its implications became clearer and were applied by both himself and his opponents to current doctrines, he became involved in a series of conflicts. If Maurice's view was true, then predestination and election, the Calvinistic bulwark of the Evangelicals and many of the Non-Confessionists must collapse. Then a bitter and intricate controversy arose with Pusey over the nature of baptism—more intelligible, says Dr Ramsey, when seen in the light of the contrast between Maurice's position and that of the Tractarianists who viewed the Church as the home of the redeemed, full of grace and truth, in contrast with a sinful age where grace was repudiated and denied. Maurice's position also impugned the standard interpretation of the atonement as the propitiation of an outraged deity. He was accused, quite unfairly, of playing down the fearful sin. The climax came in 1853, when he was expelled from the two chairs which by then he held at King's College, London—of English Literature and Modern History, and of Theology. He had attacked the received meaning of everlasting punishment in an essay on eternal life and eternal death. He was also suspect to the authorities on account of the allegedly subversive activities of the Christian Socialists.

Back in 1830, Maurice had given up his work in London and gone to Oxford as an undergraduate in order to study for ordination in the Church of England. He now signed the Thirty-Nine Articles with enthusiasm, and wrote his first theological book to prove *Subscription No Bondage* while he was curate at a rural parish in Warwickshire. In 1835 he returned to London as chaplain at Guy's Hospital, and in

1840 got his first chair at King's College. In 1845 he was offered the second chair in addition, and in 1846 the chaplaincy of Lincoln's Inn. Perhaps his finest book, *The Kingdom of Christ*, appeared as letters to a Quaker, was written in 1838. In 1860, he was appointed to St Peter's, Vere Street, and in 1866 he was elected to the chair of Moral Philosophy in Cambridge. His thirty years of stormy life in London quietened to an evening calm.

The clash with King's College turned on the meaning of words. In order at the same time to save the Athanasian Creed and the Articles and to satisfy his conviction of an all-loving God who surely could not will the everlasting punishment of any of his creatures, Maurice asserted that the term *eternal* did not refer to duration in time, and pointed to St John's report of Christ's saying: "This is eternal life that they may know Thee the only true God and Jesus Christ whom thou hast sent." Hell meant separation from the knowledge and love of God by a man's own willing; it was the opposite of eternal life, and no more could notions of earthly time apply to it. Maurice explains this view in the noble letter to Hort included in *The Life*. It was written four years before his expulsion in answer to questions put to him by Hort, then a Cambridge undergraduate. As so often with his letters, it has a deep candour lacking in the complexities of his formal writings.

But the Principal and the Council of King's College could not take this teaching and found it subversive of the students' faith and morals, and at the other end of the spectrum an agnostic like Leslie Stephen was maddened by what he regarded as Maurice's disingenuous quibbling with words. For Maurice himself, who regarded his ministry to young people as his special vocation, probably the saddest part of the affair was his loss of contact with the students. But he still had his Lincoln's Inn chaplaincy, and Tom Hughes has described the Sunday afternoon services when Maurice preached and the chapel was crammed with young men of all shades of belief who came by hundreds because they felt he had something real to tell them.

Dr McLean asserts that Today it would be generally agreed that the difficulty at King's College was not really the result of Maurice's heretical ideas about eternity, perfectly acceptable to twentieth century theologians. Rather the crisis... was the result of a profound suspicion of Maurice's political opinions.

It is certainly true that conservative members of the Council were already prejudiced against Maurice on account of his leading connexion with the Christian Socialists, but two years earlier after considerable agitation their confidence in Maurice and it is certainly misleading to suggest that the theological issue in 1845 was secondary. The motion for his dismissal was proposed by Blofield, the Bishop of London who had already informed the Principal that while Maurice held his chair he would refuse to accept the College certificate as a qualification for ordination.

Maurice's dealings with the Christian Socialists are an excellent example of the inner consistency underlying the surface ambiguity of his outlook, an ambiguity which resulted in misunderstanding and frustration, particularly for John Ludlow, his disciple and closest colleague. Maurice's politics and economics were directly derived from his theology. He saw existing society and its institutions as fundamentally part of a divine order, the order of the Kingdom of Heaven. Therefore they must never be overthrown in the search for a better world. He was quick to recognize social evil and injustice, but saw these as a cancer which could be purged away leaving the healthy tissue to reassert itself. Ludlow too wanted a society built on Christian brotherhood, but he saw existing society and its institutions as malignant tumours which had poisoned the body politic and were incurable. Society could not be rehabilitated; it must be rebuilt to a new Christian specification. Ludlow thought that this might be done through the

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Producers Co-operatives, whose forgoing was the most interesting and original of the Christian Socialist movement. But he realized, and deeply accepted that a society based on Co-operatives implied a planned economy. Maurice welcomed the Co-operatives as examples of Christian brotherhood in social action, but certainly not as the beginning of a new society, and their systemization in a planned economy would have been anathema to him. These lurking differences of outlook were suddenly highlighted by Maurice's peremptory refusal to allow the distribution of a Christian Socialist tract by Lord Goderich advocating the cause of democracy as the cause of God. Lord Hughes was ordered to suppress the whole edition, and though none of the other Christian Socialist leaders agreed with Maurice, he obeyed. Maurice then explained his position in a long and involved letter to Ludlow. His innate conservatism bursts out in a quotation used by Dr Brose:

I stand upon my old-English ground. I want a Blackstonian balance of powers, a negation of reality, any kind of *via media* in Church or State. But I must have Monarchy, Aristocracy, and Socialism, or rather Humanism, recognized as necessary elements and conditions of an organic Christian Society.

Dr Brose happily describes him as "The Burke of the Church of England." Maurice's mind was veering away from economic experiments and political manifestoes towards the education of working men as a more effective contribution to the good society, an approach which was far more in line with his natural genius. The result was the end of Christian Socialism as a practical organization though not of its influence, and the foundation of the Working Men's

College which remains today a living expression of Maurice's ideal of brotherhood. Its roll of teachers, all voluntary, includes Ruskin, Rossetti, Lowe, Dickinson and, of course, Maurice himself. Four years earlier, Maurice had founded Queen's College for the education in this case of young gentlemen destined to become governors. He staffed it from King's College and lectured there himself. Queen's too remains, now a flourishing school and college preparing girls for the universities and every kind of professional training, a development which Maurice in 1848 would not have approved. Yet this astonishing change of each generation.

Disappointingly, one last puzzle in Maurice's outlook has not been satisfactorily solved in the three books discussed here. This puzzle is Maurice's seemingly complete immunity from worry caused by the challenge of Darwinism or German Higher Criticism or the scepticism of Comte. Not only was he untroubled himself, but he saw no need to take up the challenge on behalf of others. He had a brief battle with Colenso over the *Pentateuch* and he did not like the stripping-down of belief in *Essays and Reviews*, but he virtually ignored Darwin, and he used Strauss and Comte for his own ends as "forgetting" an answer to the big vital question—was the Christian revelation only a conception or a dream or is it the verity of verities? Maurice's answer was satisfactory to himself but provided no solution for those who held serious intellectual doubts. Maurice said simply that he had to believe in the living Christ, but he could not survive. Discussing his famous controversy with Mansel, Dr Brose shows him again shying away from this argument with an emotional assertion: if Mansel were right, then he himself would need "to

abandon every conviction that was most precious to me". The controversy with Mansel, since it turns upon questions of epistemology, in handling the first part of his argument, Mansel shows himself as a startlingly close forerunner of logical positivism, as H. G. Wood pointed out in his *Dale Lectures* on Maurice. Very briefly, Mansel's position was that a finite being cannot comprehend the infinite being of God. Left to himself, he cannot make meaningful statements about God. He can know God only through knowledge delivered to him by God himself and even then this knowledge does not reveal God as he is in himself, but only as the "Mansel" helps to think of him. It is speculative rather than speculative and it is mediated to us through the scriptures and the tenets of orthodoxy.

Such a position, took the very heart out of Maurice's belief. The belief that we learn from the Bible what God is as what our relation to him is through studying his actual dealings with man, culminating in the life, death and resurrection of Christ. We are made in God's image and as persons we can learn to know him as a person. If he had been commencing the present-day discussions of the language in which the truths of religion can best be expressed, Maurice no doubt would have said that the symbolism of fatherhood, sonship, etc., tells us more about the reality of God's being than any number of propositions. And here we may fully leave him, for this controversy with Mansel emphasizes both his weaknesses and his strength. Many, reading it in more detail, may consider that he loses on points—and yet the fight is his. Since for us a hundred years later, as for his own contemporaries, he makes dry bones live.

verbe, the suggestion is, must be, an ideological hack, equally insincere in both kinds of writing. This argument is in turn an offshoot of the wider supposition that all occasional poetry because, as is well known, poets write poetry only when they're in a lousy about something or other. This, of course, is one of the more slovenly philistinisms around at the moment. As Northrop Frye has pointed out, there is a difference between real sincerity and literary sincerity. Sincerity is necessarily so, because real sincerity is inarticulate. After all, Marvell probably never had a coy mistress (though he had non-boys) and Milton would have written *Lycidas* Edward King or no Edward King, he wanted just to write a pastoral elegy, and had been practising on every available corpse since he went up to Christ's.

Nevertheless, Day Lewis's occasional poems weren't successful and showed little of the technical virtuosity and flair to be found in his excellent Virgil translations. But perhaps this failure gives us a clue to the positive qualities of his very best verse. In the interview Day Lewis admitted that as regards politics he had found it necessary to "limit his capacity for indignation" as he grew older; "few of us," he said, "are Bertrand Russells". Yet in quite a different sense it is this feeling of "indignation" that marks Day Lewis's most successful poems (one thinks particularly of his *Word Over All* collection)—an urgent and energetic assertiveness, whether writing about politics and war or simply about love and the passing of time. It is interesting that some people who were hostile to Day Lewis as Laureate were talking quite cordially about the possibility of Auden succeeding him, until his recent disclaimer. Auden, of course, is a conscious craftsman; the ludic element is very strong in his verse and this might have suited him for the post. Day Lewis was a more emphatic, even impetuous, writer, without Auden's grand disinterestedness.

Certain members of the left, continuing to make inadequate distinctions between poetry and politics, never forgave Day Lewis's move towards the centre, which was symbolized, it seemed to them, by his acceptance of the Laureateship. The *Guardian* literary adviser, who decried the Laureateship, was, I suppose, also a little confused by the occasional and occasional

One may well wonder whether these rival theses are as antagonistic as Professor Gregory's description of them might suggest. Certainly the Gibsons' own description of their theory ("systems that explore the light and sound and pressure of the environment for the information contained") barely accords with Professor Gregory's account of it as essentially passive. For him the act of perceiving involves processing stimuli that are themselves meaningful; for the Gibsons it is one of attending to the flow of information in the world around us.

Professor Gregory suspects that we cannot trust the evidence of our senses, while the Gibsons, who deem this evidence is all that we can trust.

# Commentary

The four special articles in this special number of the TLS, which we have called "The Way to the Brain", are about sensory perception. To talk about perception is to talk about everything which can happen between stimulus and response, or between insult and injury.

The divergence of opinion among leading psychologists emerges clearly in the articles by Richard Gregory (page 707), and Eleanor and James Gibson (page 711). In Professor Gregory's description, the divergence is between "passive" theories (which regard the senses merely as windows of the brain) and "active" theories (which consider that what we perceive are essentially fictions constructed by the brain, reconciling fleeting data with information drawn from his memory banks). Professor Gregory himself is an activist, and in stressing the cognitive side he makes much of optical illusions and paradoxes, and of the fact that we go on behaving sensibly even without sufficient sensory stimuli.

The Gibsons, on the other hand, hold that the senses are perceptual systems, which in seeking information are capable of regulating and directing the sense organs; the act of perceiving "occurs in a circular process from the sense organs to the brain then back to the sense organs, and so on".

One may well wonder whether these rival theses are as antagonistic as Professor Gregory's description of them might suggest. Certainly the Gibsons' own description of their theory ("systems that explore the light and sound and pressure of the environment for the information contained") barely accords with Professor Gregory's account of it as essentially passive. For him the act of perceiving involves processing stimuli that are themselves meaningful; for the Gibsons it is one of attending to the flow of information in the world around us.

Professor Gregory suspects that we cannot trust the evidence of our senses, while the Gibsons, who deem this evidence is all that we can trust.

# OH MY GOD IS THAT YOU?

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WE ALL OF US were born, will mature and sooner or later will die. Our voyage from the cradle to the grave, taking on average the biblical three-score years and ten, involves an enormous change in our understanding of the world about us. At the very beginning of life we appear to be able to notice very little of our surroundings and the most noticeable reactions we can make are purely reflex ones. In the prime of life, whenever that is, we can create and comprehend remarkably abstract ideas and enjoy extreme emotional experiences. As the grave hurries closer our sensory appreciation of the world becomes less keen, while at the same time we might suffer from increasing hallucinations or delusions and our days in a world completely unrelated to that around us. This fate might befall us even before the decay of old age sets in, or we might voluntarily submit to distortions of our experience by taking one of an ever-increasing number of drugs.

The mechanisms by which these changes of sensation and sensations in general are experienced are still not understood. The basic problem is to understand how a sensation is perceived or felt.

The solution of that problem has both humanitarian and philosophical consequences for it may help us to cure those who cannot perceive effectively as well as to understand the contents of consciousness and so consciousness itself. In the same way that we can understand what buildings are if we look at them in all their various states of construction and in all possible shapes and sizes, so can we appreciate more about the sensations if we observe their development in the growing person or in obviously pathological states. Recent research has produced interesting indications as to the way the perception of the world develops by investigating it in the normal child.

To begin at the very beginning, in the nine months of foetal experience reactions appear to be reflexive in character. Of course there are great difficulties in experimenting, especially in the early stages of conception, but evidence has accumulated over the years from aborted foetuses and premature births. Apparently the very first reflex, at about two months after conception, is that of bending the neck to the opposite side when the mouth or side of the nose is touched with a fine hair. A little later other reflexes such as the palmar grasp reflex (of closing the hand when the palm is touched) and that of rhythmic sucking on touching the tongue or inside of the lips.

By the age of seven months a prematurely born infant will close its eyes if a light is shone on them, be awoken by a loud noise and react to pain by crying and withdrawal of limbs. It is not until a full-term of nine months that the infant will begin to develop some form of vision by following a moving light with the eyes, while responses to sound have become more complex. The newborn baby is certainly sensitive to many different kinds of stimuli such as pain, touch, pressure, temperature alterations, taste and smell. Colour sense is not yet formed though it appears about the first month after birth. At first, red and yellow can be distinguished, green being added later, though it is not until about three years of age that colour vision is reasonably well developed.

The earliest responses to life certainly appear to be passive, and appear to confirm the stimulus-response model of sensations. The order of development of new responses can be reasonably well explained by following the maturation of various parts of the brain. This proceeds first with the most primitive parts—the brain stem and mid-brain—and not till somewhat later does the cerebral cortex appear to be sufficiently well developed to take a part in the proceedings. The region of the cortex in control of movement appears to mature first, though it is closely followed by the sensory region for touch perceptions on the body surface, with the areas for vision and hearing lagging behind. These discrepancies begin to disappear at about the second year, at the same time that the regions surrounding these primary sensory areas, called the associative areas, also mature noticeably. The term "associative" is used here

# Neural connexions and the life-cycle of the senses

BY JOHN G. TAYLOR

To indicate that these surrounding areas allow the sensations of different modalities to be related together, they appear essential in making it possible for a person to "understand" or correlate the different features of an object which he observes by various sensory modalities.

We start life, then, as a passive unconscious machine, responding to the streams of energy of different forms impinging on our various sense organs, which themselves are only very loosely, if at all, linked together. Somewhere in the first two years of life this relating of sensations takes place physiologically, so that our perception of the world about us begins to take shape and we begin to experience our sensations in a much more complicated way. It is helpful here to use the now discarded differentiation between sensation and perception to allow us to take account of the change we have all undergone from the initial passive state to the evidently active or creative one of our mature years, when what we experience is greatly modified by our earlier sensations.

We must realize, however, that our early passive state is already quite a complex one. A great deal of information processing and relating between sensory modalities has already been built into the central nervous system by the time of birth. For example, by the second week of life an infant expects a seen object to have tactile consequences. This was shown recently by observing that such infants will pull their heads back, put their hands up before their face and show distress and cry if an object approaches their face, even when the approaching object is an illusion produced by a shadow-caster. Such a result cannot be explained by early learning, and there must therefore be a primitive unity of the senses built into the structure of the human nervous system, most probably relating visual and tactile senses.

Such inbuilt wiring is known to occur in other animals, at least so far as a single sense is concerned, as experiments on cats have shown. For example, kittens brought up so that they can only see vertical lines for the first six months of their life cannot recognize such lines when allowed to see them later. Nor do the cells in the visual part of their cortex, which in normal cats respond on presentation of vertical lines, show any sign of excitation in these specially reared cats. A similar phenomenon seems to occur in humans; people blind from birth have great difficulty in recognizing objects they see around them when later their vision is restored by a suitable operation. Indeed this unfamiliarity can be painful, and a woman to whom this occurred in the United States told me recently that she was very glad when she lost her sight again several years after the operation. Even before the second attack of blindness she used to prefer going into a dark room to avoid the strange objects she could see around her.

This phenomenon in blind people whose sight has been restored could be explained either by the need for visual experience during a critical period, as in the case of the kittens mentioned above, or by the need for developing suitable associations between different sensations of the same object as these are separately

being experienced. It is these associations or relations which may well give us the complexity of the perceptions which we have developed by that time. I wish to return to this relational aspect, but before doing that let us return to the problem I raised earlier as to the manner in which we change from unthinking machines to our present sensitive thoughtful state.

It is very probable that the changes we are considering can only proceed once certain essential structural connexions have been made in the nervous system. In particular in the cortex, that does not mean that the development of percepts is completely controlled by the neuro-anatomical connexions already formed, since a suitable environment is expected to be necessary so that the percepts can actually be developed. We would still expect the biological factors to limit the first appearance of a particular mode of perception.

Let us consider the development of complex reactions to visual experiences. A newborn infant tends to be attentive to objects that move or have sharp contours and contrast between dark and light. This attraction of

contrasting objects loses its force by the second month of life, when stimuli with not too great differences from those usually experienced come to the centre of attention. Recent work indicates that attention is greatest for stimuli with only moderate discrepancy and decreases if the discrepancy with previous experience is either too great or too small. This discrepancy principle also appears to be valid for auditory perceptions as well as shapes, and may even include other sensory modes.

Until about four months of age the infant appears to live in a world of places and movements; an object moved to another place becomes a different object. But after this age objects begin to take on a unique form, even when they are moved from one place to another. When an infant more than twenty weeks old is shown a multiple mirror image of its mother it becomes quite upset at the sight of more than one mother, while a younger infant smiles, coos and waves at each of the many mirror images of its mother in turn. The older infant's response can be explained as being caused by an attempt by the infant to explain the discrepancy

of the appearance of his mother; his attempt fails, he comes fearful. A similar response is elicited when the infant is shown a mirror image of himself or with a stranger. Crying of infants but does so strongly at twelve and fifteen months; in older children there is again a reduction of tears.

The child appears to attempt to explain discrepancies in an ever-increasing range of his experience from at least four months of age. It is as if it were creating hypotheses to explain these discrepancies, and that these come in play an ever-increasing part in the way it experiences its environment. In other words, the young child seems to be formulating an internal model of the outside world. This model is naturally constantly developing, but can only do so so long as there is not too great a gap between its present model and what it is currently experiencing. If the gap cannot be bridged then fear and deep emotional impact. While the theory of hypothesis formation in a manner in which the internal model of the outside world develops is still largely unproven, it naturally explains the unhappy reaction of the congenitally blind on being able to see.

As the child grows so his cognitive abilities develop, especially that of relating different kinds of stimuli to each other, which has been found to improve up to about eleven years of age. The more symbolic ability of speech develops about the first year, and has a particular region of the cortex associated with it. However, there is a considerable gap, usually of about a year, between the time when a child is capable of producing all of the sounds needed in speech and when he actually begins to pronounce syllables, words and then phrases. This delay may well be caused by the learning process, and may be due to lack of suitable neural connexions.

Further intellectual abilities appear as the child gets older, following a chain of development first remarked

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of how long our Planet will be able to bear the burden of constantly increasing population and its consequent food requirements, to stand the strain imposed by growing industrialization, and to ward off the ill-effects of pollution, which is ever spreading further afield and is becoming more and more poisonous as time goes on.

## Getting Homer in proportion

C. M. BOWRA:  
Homer

191pp plus 39 photographs, Duckworth. £2.95.

This is the last work that we shall see from Sir Maurice Bowra: and so it represents the end of an epoch. After his death on July 4, 1971, he left nine chapters published here were found among his papers, five of them ready for the printer and the remaining four very nearly ready for final typing. The last chapter had not been written. It was to have been called "Summary and Survival", and would surely have been a memorable summation not only of what is written in the book but of Bowra's views expressed, modified and re-expressed over forty years. The publishers, and Hugh Lloyd-Jones who edits the series "Classical Life and Letters", decided, rightly, that it was better not to append a chapter on the subject written by someone else. (They hope to publish a separate book about the history of the Homeric poems from the time of Homer to the present day.)

Within the general area of Greek literature, Bowra operated over a large field. Despite the recent *Periclean Athens*—a very shrewd assessment of fifth-century imperialism—the twin centres of this field were epic and lyric. His first book on Homer, *Tradition and Design in the Iliad*, was published in 1930. Since then, he has made many further studies of the subject, and also numerous analogous poetic cultures, as in *Heroic Poetry* (1952) and *Primitive Song* (1962).

One therefore turns with particular interest to his account of Milman Parry, "the Darwin of Homeric studies", whose inquiries, first published in French in 1928—seven years before his death—can now be conveniently studied in *The Making of Homeric Verse*, edited by his son Adam Parry of Yale. As is well known, Parry established that the Homeric epics are oral poetry, not composed like the works of a literate poet but partly dependent on long-established word-groups or formulae. Like all great advances, this is now, by a subsequent generation, almost taken for granted. But Parry's more indiscriminate disciples got the matter somewhat out of proportion, and many efforts have subsequently been made to strike the right balance. This is the sort of exercise at which Bowra excels. He has always been a commonsense critic. His judgment is mastery; and occasional attempts to deny it have never made very much progress. So his chapter on "Oral Composition" in the present

book sees Milman Parry just about right, emphasizing the importance of his discovery and telling us exactly how far it goes:

When a difficult metre like the hexameter is combined with a highly inflected language like Greek, the formulae must be varied to satisfy the many different requirements of metre and syntax. Indeed, Greek heroic poetry seems unique in the obstacles which it presents, to extemporary recitation, and this means that the bard must be richly equipped with formulae to meet every challenge.

What it does not mean is that the Homeric poems can be regarded as any less "original", to use a term that needs much careful scrutiny and definition, especially when it is applied to the ancient literatures.

A literate poet composes with single words which he chooses for their individual worth to him, and we judge him by his choice and combination of them. A formulaic poet composes with formulae, and it is by his choice and combination of them that he is judged. A new combination of old formulae may lead to an entirely unforeseen result; many formulae change their tone with the context, and something new may always emerge.

Parry is one of the very few modern Homeric scholars who is quoted in this book. At the end, half a dozen recent works have been listed by the editor, but Bowra himself does not refer to the gigantic mass of current Homeric literature. That does not mean, of course, that he was unaware of it. But after studying it, and above all after continually studying and restudying the poems themselves, he has preferred to give us his own sensible, humane, authoritative view. Certainly, a few scholars who wrote between 1664 and 1916 are mentioned in the introduction: because this is where Bowra tells us what he thinks about the eternal problem of whether or not the *Iliad* and *Odyssey* were each composed by a single poet, and, if so, whether they were both composed by the same man. He provides a concise account of the three main types of "analytical" theory proclaiming multiple authorship, points out the disadvantages of each of these views, and then goes on to record the main disadvantage of the "unitarian" point of view as applied to each poem: if the single hypothetical poet of the *Iliad* or the *Odyssey* was an artist in words, as we are sure obliged to believe, would he have tolerated the undoubtedly awkward breaks and obstacles that occur in the narrative, and the stretches of confusion and ambiguity?

But the theory of oral composition outdates and supersedes these older

controversies, and leaves us in the presence of an inspired bard of whom we say, the later eighth century, or who happened to live at the very time when his recitations, unlike those of his predecessors, could be recorded in writing, revived after its long disappearance dating from the end of the Mycenaean age. Such recording is very rare in oral verse, which in consequence has mostly vanished.

Non-literate societies, he observes, sometimes achieve fabulous feats of memory. And that is why, as every textbook tells us and Bowra repeats

an 825 and c. 1350. These recollections are historical legend, not history. Sometimes they contain a kernel of truth; often they do not. Such cycles of legend, Bowra reminds us, are packed with inventions, distortions and omissions. Roland was indeed killed at Roncesvalles in 788, but it was an insignificant skirmish, fought not against Saracens but against Basques. Boundaries of space and time go for nothing. So too, the Trojan War (in which, incidentally, Homer gives many of the Trojan leaders Greek names) may likewise never have taken place. "The third

C. M. B.

Which of the two, when God and Maurice meet,

Will occupy—you ask—the judgment seat?

Sure, our old friend—each one of us replies—

Will justly dominate the Grand Aesop;

He'll seize the sceptre and annex the throne,

Claim the Almighty's thunder for his own.

Trump the Last Trump; and the Last Post postpone.

Then, if his step prerogative extend!

To passing sentence on his sinful friends,

Thus shall we supplicate at Heaven's high bar:

"Be merciful you made us what we are;

Our jokes, our joys, our hopes, our hatreds too,

The outrageous things we do, or want to do—

How much of all them we owe to you!

Send us to Hell or Heaven or where you will,

Promise us only, you'll be with us still:

Without you, Heaven would be too dull to bear,

And Hell will not be Hell if you are there."

JOHN SPARROW

In convenient form, the *Iliad* and *Odyssey* reflect traditions from at least three different periods: the Mycenaean epoch, the so-called Dark Age of c. 1200–c. 800 (not so dark if heroic poetry was reaching its zenith) and the eighth century, or thereabouts, in which the Homeric poems reached their final form. Bowra quotes the Kings of Uganda, whose official singers recalled their descent for thirty generations, and the Maoris who remember in detail the voyages which brought them from Tahiti to New Zealand between c.

seventh century BC was a time of such far-spread activity that the Trojan War falls easily into it. Even so, though Troy was certainly burned, we cannot be certain that it was burned by Achaeans. This is the sort of judicious clarity characteristic of Bowra's literary style. As he moves on to the "Shape and Character of the *Iliad*", the subject of his earliest published work on these themes, his comments particularly repay attention; for example, when he points out that single combat, the ultimate test of a

## Noble termites of the Western Empire

M. T. W. ARNHEIM:

*The Senatorial Aristocracy in the Later Roman Empire*  
240pp. Clarendon Press: Oxford University Press. £5.25.

M. T. W. Arnheim offers a warm acknowledgment in his introduction to the late A. H. M. Jones, who supervised the PhD thesis on which this book is based. He was also fortunate enough to see, before writing the thesis, a typescript of *The Prosopography of the Later Roman Empire*, Volume I (AD 260–395) by A. H. M. Jones, J. R. Martindale and J. Morris, which has opened up a new epoch in late imperial studies. When it was reviewed in the *TL9* (April 16, 1971), the reviewer commented that in spite of Gibbon this period has never secured a firm position in the British cultural (or at least educational) scene. But now the *Prosopography*, though itself matter for a specialist, is likely to instigate a whole series of works which will make the epoch more generally familiar. Indeed Mr Arnheim's book is already one of them: it is a sign of the times, and a welcome one.

Mr Arnheim places his subject in proper perspective by relating it firmly to more general develop-

ments, past and future: the historic relationship between emperor and senate, and the subsequent "Decline and Fall". On this phenomenon he has several extremely interesting points to make. First, as a preamble, he recalls Baynes's reminder that any explanation for the Decline and Fall has to be one which will explain why the Western Empire crumbled into fragmentation and the Eastern Empire did not. Then, he quotes Baynes again, to the effect that the difference between the two areas was this: that the Western (especially the Danubian) provinces were continuously ravaged by invasions, whereas Asia Minor was not. Jones's conclusions, which Mr Arnheim proceeds to cite, were similar: the Western Empire, with specific strategic disadvantages vis-à-vis the East, did not collapse from internal causes, but succumbed to persistent attacks by invading barbarians.

But now we come to Mr Arnheim's own surmises. Strategic vulnerability, he concedes, is one important respect in which the East and West differed. But is it, he asks, the only one? And the answer given in this book is "no". For he maintains that the decisive difference lay rather in the internal power-structure of the two areas,

and more particularly in the far greater strength of the aristocracy in the West. If there was a "Dominate" or "Oriental Despotism", it was in the East. In the Western regions the senatorial aristocracy, remaining exceedingly influential (regardless of the weakness of the senate itself), was essentially a centrifugal force, which helped to undermine the position of the imperial administration from within, while war and invasion threatened it from outside. This is, of necessity, only the briefest summary of a well-worked-out argument—including speculations about how this difference between the two areas came about. But it should be enough to show that the suggestion is one which will amply repay further study.

Once again, we are back with an internal rather than (or more than) an external explanation of the Decline and Fall. And we are also back with those who say that the Decline and Fall was not what it seemed to be. What the Germanic invasions, really did, according to this version, was to strengthen the already ascendant centrifugal aristocratic forces still further at the emperor's expense. (And before long, as we can see from Gregory of Tours, the

nobles were coming to control even the church: Land and Church, the bulwarks of the Middle Ages, were thus united.) This is a valuable point to have made; and perhaps Mr Arnheim cannot be blamed, in the relatively few pages devoted to this vast subject, for not marshalling some of the evidence that might contradict his general theme. At any rate, the whole matter is wide open for continued discussion.

When he goes back to the earlier stages of these processes, Mr Arnheim refuses to follow the rather commonly held view that the specific institutions of the later empire were the product of a process in which the reforming activity of Constantine was a continuation of that of Diocletian. He sees a sharp break between the two:

Diocletian is the culmination of anti-aristocratic trends that can be traced back to the earliest days of the Principate. But Constantine reversed these trends by appointing nobles to high office. To me, the reign of Diocletian was not a beginning but an end. Provided it is not taken too far, this is salutary; for historians are generally too inclined to see everything in terms of continuing tendencies, rather than to accept that tendencies are sometimes reversed.

Being so willing to concede that such about-turns may happen, Mr Arnheim naturally cannot resist expressing his views on Constantine's conversion to Christianity. They appear only in a footnote, but there are thirty-six lines of it. This conversion, it is concluded, far from being politically expedient, or giving the emperor a firm basis of support, merely allied him, as an act of faith, with a small and relatively powerless minority. In other words, it placed him not in a strong position but in a weak one—and that was precisely why he had to placate the influential pagan aristocracy.

These points of view are based on a close study of the careers and family backgrounds of imperial appointees during the period. Although the more general observations at the beginning and end of the book are what will chiefly interest the non-specialist reader, the meat of the sandwich consists of detailed prosopographical research, backed up by statistical tables and lists. Not surprisingly, the book has taken some time to go through the press. Otherwise, no doubt, F. W. Wallbank's *Decline of the Roman Empire in the West* (1946) would have been replaced by *The Awful Revolution* (1969).



## Newton's dry decade

The Mathematical Papers of Isaac Newton  
Volume IV: 1674-1684  
Edited by D. T. Whiteside  
678pp. Cambridge University Press.  
£18.

The fourth volume of Newton's *Mathematical Papers* brings us to 1684, when Newton began the composition of his *Principia*. The papers assembled here illuminate his activity during a decade of his tenure of the Lucasian Professorship at Cambridge, concerning which (especially the eight years from 1676) "very little is known" to most scholars. But, while thus filling "a not inconsiderable gap in our understanding of the totality of Newton's mathematical expertise", the writings of this period are fragmentary and—as the editor admits—do not hold out "the wide, panoramic prospects of Newton's more sustained mathematical treatises".

No doubt, the "largely jejune, unforthcoming character of this somewhat ill-matched miscellany of papers" may be interpreted as an index of Newton's own state of mind during this decade. For he had then a disinclination to "devote more than a minimal amount of his creative effort... to mathematical research". These were the years during which Newton was more engrossed by his alchemical and religious studies, and his inquiries into the nature of matter from both a physical and chemical viewpoint. But he did evince some interest in astronomy. In 1679 he was produced by Hooke to explore, and more fully than he had intended, the path in space of an object let fall from a moving Earth, and the consequence of that analysis for the paths of planets in a Kepler-Copernican system. But only at the end of the decade of these mathematical papers, do we find in Newton's writings anything like the earlier "excitement in the theory of fluxions and infinite series".

As a major professor, Newton dutifully attended to university business, as witness his voting slips for various candidates for college and university posts and Parliament. He gave books and a cash gift to the Trinity College Library. While he no doubt became more and more the absent-minded professor, forgetting meals and often showing a lack of concern for his dress, he did have a small circle of visitors to his rooms, and his amanuensis recorded Newton's "Delight and Pleasure at an Evening" with Henry More, the Platonist philosopher and fellow Lincolnshireman, recorded Newton's "singular Genius to Mathematics... I take him to be a good serious man" and observed that Newton's "ordinarily melancholy and thoughtful" countenance was, on occasion, "mighty

lightsome and cheerful, and in a manner transported".

While Newton continued to work away on a variety of mathematical topics during the decade of this volume (including number theory, algebra, trigonometry, analytical geometry and calculus), he certainly gave the impression, as John Collins recorded (1675), that "both he and Dr Barrow [here] beginning to think Mathematical Speculations... grow at least dry if not somewhat barren". He found "Mr Newton... intent upon Chymical studies and practices". Newton himself wrote to Oldenburg that he felt he had made himself "a slave to Philosophy", i.e. science, and had resolved to publish no more and to work only "for my private satisfaction or leave to come out after me". He did communicate a summary of some of his mathematical discoveries to Oldenburg for transmission to Leibniz, and he evidently began an abortive edition of his optical papers. As he wrote to William Briggs, "I am of all men grown the most shy of setting pen to paper about any thing that may lead into disputes about science".

Then, abruptly, in June 1684, Newton received a copy of James Gregory's *Exercitationes Geometricae*, only to find once again that he had lost his priority of publication of certain results concerning the use of infinite series, and even a particular case of his binomial theorem. In a spasm of energy, Newton quickly produced two mathematical tracts, "elaborating his own claims to priority of discovery" and explaining in full his own methods of using infinite series and their applications.

While still working on these two tracts, never completed by Newton and published for the first time in the present volume, he received

Halley's famous visit in August 1684. Halley had come from London to Cambridge to ask Newton what he thought the path of the planets would be around the Sun, "supposing the force of attraction toward the Sun to be reciprocal to the square of their distance from it". Halley, "struck with joy and amazement", learned that Newton had actually "calculated" this path, and he encouraged Newton to write up his researches for publication. The result, Newton's *Mathematical Principles of Natural Philosophy*, one of the greatest books on science ever written, was published three years later. In it Newton introduced some of the pages on conic section he had by him, and which are printed in Volume IV of the *Mathematical Papers*, and also some work he had done on interpolation (also included in this volume). While it is not entirely fair to view the papers of 1674-84 as exercises keeping Newton in readiness for the great assignment of the *Principia*, the reader cannot help feeling that the greatness of invention (in such topics as geometry, calculus, and infinite series) so evident in the earlier volumes of *Mathematical Papers* is lacking here.

Even so, the contents of Volume IV show us a mathematician of the highest rank, working on an incredible variety of topics. As always, the standard of editing is superb and D. T. Whiteside's introductions and running commentaries are always illuminating, bringing a new high level of understanding not only to Newton's achievement but also to the whole development of mathematical thought and technique of the seventeenth century. The craftsmanship of the Cambridge University Press, in producing these difficult texts with such beauty and elegance, deserves the highest praise.

## Cavendish's captain

MARK OLIPHANT:  
Rutherford: Recollections of the Cambridge Days  
158pp. Amsterdam: Elsevier, 22.50fl.

Rutherford's life has been well written by A. S. Eve, but this sprightly volume by the governor of South Australia does not seek to compete in the field of formal biography. It is a lively, intimate account of a great personality in the days when Rutherford presided over a brilliant team at the Cavendish and every year saw some epoch-making discovery. There is much here that cannot be found elsewhere and could not possibly have been written except by someone who knew Rutherford at close quarters. It was a happy inspiration that led Sir Mark Oliphant to put his recollections on paper.

Rutherford was a boisterous, racy

man with a sense of humour that could be described as elementary, and he worked his team hard, but they all loved him. He was capable of telephoning a colleague in the middle of the night when an idea occurred to him, but he was solicitous to give everyone the credit due to him, and on occasions could show the utmost tact and delicacy, as when it became necessary to soothe the feelings of his former collaborator, Frederick Soddy.

Rutherford emerges from these pages as one of the greatest experimentalists of all time, comparable only with Newton and Faraday. He was essentially a simple man, as he often said himself, and his genius consisted in going straight to the heart of a problem. Sir Mark has given us a rare insight into the workings of an exceptional scientific mind.

## Organicism and pseudo-organicism

G. S. ROUSSEAU (Editor):  
Organic Form  
The Life of an Idea.  
108pp. Routledge and Kegan Paul.  
£2.

This elegant little volume surveys the meaning, history, and limitations of the concept of organic form in living systems and in literature and art, as seen by three distinguished American scholars. After an introduction by the editor, G. N. Giordano Orsini traces the origins of the idea in Plato and Aristotle. There follows an eloquent essay on "Organic Form: aesthetics and objectivity in the life sciences" by Philip C. Ritterbush, following up the more empirical development of the conception from Leonardo and Linnaeus to the Romantics, especially Goethe and Coleridge, and concluding with D'Arcy Thompson and J. C. Kendrew.

The clarity and continuity of these two essays tell the reader into thinking that all is well, and give no warning of what is to come: a caustic and witty essay, perhaps the most valuable because the most original of the three, by W. K. Wimsatt on "Organic Form: some questions about a metaphor". Professor Wimsatt, unbemused by any romantic enchantment, takes a close look at what he regards as superficial treatments of the metaphor of organic form in literature and art, and points out some of its inescapable and important limitations. The best works of literature and art need not, and often do not, possess organic form as usually understood. The human poet or artist exercises conscious freedoms not open to any organism. It is time, Professor Wimsatt suggests, for a looser conception of "poetic organicism" allowing room for the significant differences between living systems and human creations. He refers to Barbara Smith's recent, *Poetic*

*Closure: a Study of How Poems End*, and uses her and Aristotle to plead for a humble, less transcendental organicism in the interpretation of literature.

*Organic Form* arose from a 1970 session of the Literature and Science section of the Modern Language Association meeting in New York, and Professor Rousseau, the organizer of the session, contributes an interesting bibliography, chronologically arranged, from Milne Edwards, 1823, to C. H. Waddington, 1970, including some 300 works from this century. Notes and five illustrations accompany the essays. More scholarship could not be condensed into 100 highly readable pages, and it is no criticism to point out that one recent, well-emphasized characteristic of all cellular organisms, their hierarchical structure, is not mentioned in the essays. It might be relevant to a future examination of the scope of the metaphor.

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upon by Piaget. Sensory discrimination also increases, though after two decades or so some of these abilities may begin to decline, marking the inexorable advent of senility. This has even happened at birth for the brain as a whole, since no more neurons are formed, but subdivision from about that date. In fact from then on there is a loss of nerve cells at a roughly constant rate during life, reducing the average brain by about 20 to 30 per cent in size by the age of sixty to seventy years. This is evidently made up for, as far as cognition goes, by increased connectivity and so greater efficiency at least in the first few decades of life. But sooner or later there is a noticeable loss of sensory activity as well as of higher intellectual abilities.

As aging sets in there is loss of hearing, especially at higher frequencies, of vision and the ability to focus, and of course smell and taste. There is some shakiness of the hands and incoordination of the muscles and a change of sleep habits. Memory impairment can be noticeable, especially the ability to recall past items, though recognition is not necessarily reduced. There is also an increased incidence of seizures, which may occur with loss of consciousness. Old age is sometimes called second childhood, and many of the impairments of the aged cause them to act in very childish ways. However, aging is certainly not a reversal of the developments of childhood, but rather a process of increased error in the programmes formulated in earlier years. It is as if the noise level in the brain increases too much to allow for its efficient functioning. This seems to explain

the incidence of Parkinsonism, with tremor of one or more limbs appearing, and of impairment of memory function.

One tragedy of the polys brain is epilepsy, which at least for focal epilepsy seems to arise from a brain in which noise in a particular region forces the rest of the brain to go along with it. The result is a petit mal or grand mal fit, which along with automatism, the aura and other mental experiences have been carefully documented. Such malfunctioning is far from being understood, as are the basic causes of the hallucinations arising in sensory deprivation or under drugs; dreams and hypnosis are also of great importance in our unravelling the way sensations are woven into the fabric of life and are controlled by the brain.

We are far from understanding the detailed way in which hypothesis formation allows our sensory experiences to be deepened and enlarged so as to embrace the complexity of our mature conscious life. We are not sure that this idea will be enough or is even on the right track. But some such analysis is necessary to come to grips with the problem I raised earlier as to how each one of us has changed from our earliest stage as an unthinking machine to our present sentient state.

Beyond this we have to face up to the basic problem presented by the sensations, which is that of their mental quality. They appear to reside in a world distinct from the gross physical one of our bodies. This idea of a mental world is strongly rooted in our culture, and would appear to

present us with an insuperable barrier to our ever explaining the ultimate essence of our sensations. But this mental world produces severe difficulties when we turn either to the world of the developing infant or of the dying. Is the infant born with this mental world intact, or does it have to develop this also? And does the mental world die with the death of the physical body or continue a separate existence as many people would have it? These questions are of course only part and parcel of the general problem of the relation between such a mental world and our physical brain, but are of particular interest in view of our increasing understanding of the changing cognitive abilities of the very young and the very old.

It would seem difficult to consider a mental world fully formed at birth, at least with suitable connections to the physical one, since I mentioned that reaction is purely reflexive then. Indeed we can only suppose that the mental world develops at a comparable rate to the complexity of reaction and of the structure of the physical brain. We may kill two birds with one stone if we suppose that such development is in fact of only one object, the physical brain itself. However, its maturation is such that consciousness is evolved as having great survival value. This consciousness is based in its more primitive stages on levels of discrepancy between ongoing sensations and earlier ones contained in the memory. In other words consciousness arises from comparisons between past and present, the past events involved in the comparison being sufficiently similar

to the present one for a useful relation to be set up. The detailed content of a sensation, say the blue of the sky, is built up by comparison between the present "picture" of this sky as contained in the brain and all other past events of blueness or skyness or cloudiness or with similar properties.

The "mind" of the infant, on this theory, is initially non-existent. Only when sufficient neuronal connections are developed to enable such comparisons to be made can it be said to have a mind at all. This will begin to become steady, more complex as the growing infant and child adds to its memory and comparisons. There may well be a limit to the extent of the complexity of comparisons which can be achieved in the human brain; in this model of existence the mind is limited. But then, it is even more limited due to the loss of nerve cells, so that aging causes an ever-increasing loss of previously effective comparisons. In this sense the mind would actually decay away, in old age as a reverse of its earlier childhood developments. And certainly at death the mind disappears; there is no chance of immortality.

This comparison machine model of the mind is evidently only a very first step towards a realistic model which will accommodate the sensations and their changes. It is to be hoped that future research will show how it is to be developed so that a useful step can be made in understanding human experience.

J. G. Taylor is Professor of Applied Mathematics, King's College, University of London.

## Between Abailard and Zylberlast-Zand

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Part 2: Institutions. 789pp.

Mansell, with the History of Science Society. £28 the set.

What is there between Abailard and Nathalie Zylberlast-Zand? One imagines a celestial version of University Challenge, presided over by the late George Sarton, who is delighted to provide the answer: theirs are the first and last names in the newly published compilation of ninety critical bibliographies which originally appeared in the journal *ISIS* over the period 1913-65, for most of which time Sarton was editor. The journal was in almost every sense Sarton's, although sponsored by the History of Science Society in America. (It used to be said, half in jest, that the society had been founded to allow Sarton to stay in the United States, rather than return to his native Belgium.)

Before going on to the next question, Sarton will perhaps be unable to resist the temptation to quote a homily from his monumental *Introduction to the History of Science*: "The acquisition and systematization of positive knowledge is the only human activity which is truly cumulative and progressive." No chance to argue, as those who knew him are often heard to say. He was not the first to talk of positive knowledge without being able to say exactly what he meant, but the fact is that his enormous self-confidence and catholicity resulted in a number of remarkably useful works of reference, where the cumulative approach to knowledge is not bad thing. No one bent on consulting these new and very Sartonian volumes for an Archimedes, a Darwin, or an Einstein, is likely to grudge the space given over to Anne Boleyn, Mary the Copt, Sitting Bull, or Tamerlane.

There was a breadth in Sarton's outlook which, however arbitrary his tastes and prejudices, made his works of reference valuable to historians of every persuasion, and no historian should be ignorant of the existence of the new *ISIS Cumulative Bibliography*. If the spirit of the compilation is Sarton's, in execution it owes most to its critical and indefatigable

editor, Magda Whitrow. She and her assistants have faced, and almost entirely overcome, a very difficult task. They found, predictably enough, that the later the component bibliography, the less likely it was to include entries on religion, law and economics. Methods of citation changed, as did orthography, and likewise preferences for the forms of difficult proper names—is it "Claudius" or "Ptolemy", for instance? In the two volumes which have so far appeared, the Personalities section contains nearly 40,000 entries on more than 10,000 people. A substantial proportion of the entries needed correction of the original, but on the matter of transliteration of foreign languages, to have imposed uniformity would have been to strip the resources of the project, and the original transliteration is retained. Dates of birth and death have been added, as an aid to identification. The inevitable mistakes will be charitably overlooked in a work done on such a mammoth scale. The system of classification is more or less Sarton's: Civilization/Period/Subject/Common subdivisions. The scheme will come into its own in future volumes, but is already applied in the first two when the number of entries under one name is large.

The section of the second volume dealing with institutions is no less thorough than the parts which deal with individuals. The Academy (Athens) and the Painter-Stainer's Company (London) merit fewer entries than the Royal Society of London, but they are included without prejudice in this Sartonian democracy. This is not, however, without its foreign intruders. Robert K. Merton, in the eyes of some historians of science, is an institution of a kind, but A. R. Hall's discussion of his views in the article "Merton revisited" is decidedly out of place under the heading "Merton College, Oxford". It is perhaps not out of place here, however, to say that the compiler of any future cumulative *ISIS* bibliography will find the task much easier than did Mrs Whitrow, thanks to the exceptionally high standards recently imposed by the bibliographer John Neu, who now edits the critical bibliographies in *ISIS*. It is also as well to remember that six bibliographies have appeared since number ninety, the last with which Mrs Whitrow was concerned.

This is not a fully comprehensive guide to writings on the history of science over the half century in question; but for all their lacunae, there is nothing else on the subject which the volumes may be said to comprehend. The overall balance of the entries must of course reflect the tastes not only of Sarton and other compilers, but of those historians who were actively working on the subject between 1913 and 1965. The balance is strange in many ways. Isaac Barrow gets half a column, and Direr three times as much, with Helmholtz no more than Direr. Faraday gets five columns, but Columbus six and a half. Laplace scores only two, while Sarton himself has half a column more. Lavoisier just beats Einstein's eight; but then, Lavoisier has been dead ten times as long, and even historians of science are bashful in writing about the living. In the big league, Darwin puts up a very creditable seventeen and a half columns to Newton's twenty-three, while Aristotle, who over these past twenty-three centuries has accumulated a large number of followers, makes an effortless thirty-one. So much for the main course. For the hors d'oeuvres there is so much variety that it is hard to know where to begin, whether with Polykarp Erbelein, Saint Etheleard, or a choice of thirty-three scientific Smiths. Since a reader might well wish his appetite for the journal *ISIS* itself to which many of the references are made, what about a companion microprint edition, à la Murray's *Oxford Dictionary*?

As a specimen of book production, the *ISIS Cumulative Bibliography* is admirably suited to library needs, and the reverse of the title-page, giving everything from the tear resistance (Elmendorf, of course) to the pH acid extract of the paper, should persuade the most sceptical librarian that it is as durable as it looks. The volumes will endure in more senses than one, and all concerned in their production, whether persons or institutions, should be congratulating themselves on the fact.

## PH I

LANGUAGE OF THE BRAIN: Experimental Paradoxes and Principles in Neuropsychology. By K. H. Pribram.  
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Suggests the possibility of developing a type of chemotherapy called DNA Complex Therapy to improve the performance of humans in educational and other applied situations.

CURRENT STATUS OF PHYSIOLOGICAL PSYCHOLOGY: By Singh and Morgan. (A Brooks/Cole Book)  
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PSYCHOLOGICAL THEORIES AND HUMAN LEARNING: By LoFrancisco. (A Brooks/Cole Book)  
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# So what's all the fuss about?

JOHN MADDOX:  
The Domesday Syndrome  
248pp. Macmillan. £2.95.

Since John Maddox took over the editorship of *Nature*, the editorials, previously a 'cure for any scientist's insomnia', have taken on a swinging style, commenting sharply—if not always consistently—on this and that, intolerant of fools, and, while not illiberal, suspicious and even embarrassed by strong feelings. Dr Maddox's attitude to the environmentalist movement is well known to the scientific community, but with the publication of *The Domesday Syndrome* he enters the public lists as the champion of good sense against the overblown, scaremongering ecumens. Especially selected for impeachment are the scientists among them. More in sorrow than anger, Dr Maddox writes: "The way in which so many professional scientists—Dr Ehrlich, Commoner and Dubos, for example—have lent their names to the assertion that science and technology are automata in society, is a cause of distress to their colleagues." He then sets out to remove the white coat of scientific professionalism under which these miscreants have sought to conceal themselves.

It is certainly true that the ecology boom has been bursting out in all directions recently, and may have reached its greatest girth this month in Stockholm, having taken in *The Closing Circle*, *Zero Population Growth*, *Blueprint for Survival*, *Environment*, and many more along its path, to say nothing of pollution correspondents for daily and weekly newspapers and environment ministers in the government. But what is this bubble? Dr Maddox sets out to prick it. While it would be wrong to regard the ecology movement as united, and indeed there are serious doctrinal splits within it, it is agreed on a number of issues—that the earth is finite, fragile, and with limited resources; that these resources are being rapidly consumed by a growing human population which is at the same time filling the environment with its detritus; that earth, air, and water are becoming polluted with plastic and chemical residues, and are

in danger of dying slowly if they do not first die quickly as a result of some unexpected catastrophe. The debate between Dr Ehrlich and Dr Commoner is whether population growth or technology itself is primarily at fault; neither is optimistic about human survival, and within the ecology movement some preach inevitable, chthonic doom, while others maintain that utopian simple-life solutions may yet save mankind.

Dr Maddox attempts to deflate each of these hot-air bubbles in turn. Population growth is rapidly coming under control, and the present figures reflect more people living longer rather than more people breeding faster; built-in biological mechanisms will prevent catastrophe, and Dr Ehrlich's demographic predictions are spurious and misleading. As for pollution, in many ways we are better off than in the past; many rivers are cleaner, smog and sulphur dioxide levels in the air are lower, Lake Erie is neither dead nor dying, but can be cleaned—at a cost.

As more hazards are brought to our attention, they too can be dealt with; lead can be removed from petrol; mercury from waste—also at a cost. The hazards of DDT and cyclamates have been wildly exaggerated. And as for the possibility that we may be running out of raw materials, well, we have not done so yet, and it is not likely that we shall soon. Anyhow, when we do run short, the market mechanism, plus a little judicious government intervention, will ensure that substitutes are found.

The assurance with which Dr Maddox contradicts the prophets of doom is masterful, yet not wholly convincing. To be sure, as he would doubtless put it himself, some of his shots are well aimed; Dr Ehrlich and his population numbers game are hit hard, and not before time. The more hysterical pronouncements about overcrowded humans behaving like overcrowded rats, the greenhouse effect, the melting of the polar icecaps, stripping of the earth's protection against cosmic radiation by supersolar flight, and so forth, are shown up for the nonsense they have always been. But there is just too much blandness here, too ready an

acceptance that the ecologists' expertise is wrong whereas Dr Maddox's authorities are right. He makes just as sweeping generalizations as do the Ehrlichs, Commoners and Dubos, on slender evidence, and if he just as slenderly in accepting them, why should we accept instead his that... or "no one pretends that..." with any greater sense of security?

Indeed, there are places where his concern to reassure, to deny the very existence of problems, leans over into absurdity. If oil reserves run low, for instance, just how many orders of magnitude cost-escalation for petrol can the market mechanism absorb? Just how many deaths through mercury or lead poisoning are tolerable? Sometimes, he is just plain wrong—as over DDT, where he plays a disingenuous numbers game of his own, calculating DDT concentrations in humans in "thousandths of an ounce", as if so small a quantity were by definition negligible, yet ignoring the fact that even such tiny amounts of substances accumulated over long periods can be carcinogenic. One of the well-documented consequences of the large-scale use of DDT has been a catastrophic decline in the survival of the young of a number of bird species, often manifesting itself in the laying of infertile or thin-shelled eggs. "It goes without saying", Dr Maddox tells us in yet another of his characteristic phrases,

that for most of the species which are laying thinner eggs, the effect of the pesticides, whatever it may be on the hatching of young birds, will not usually be followed up by a similar reduction of the number of those who survive to adulthood.

This statement, in the absence of supporting evidence, is near to biological poppycock; and, if Dr Maddox took it seriously, he would have indeed let it go without saying. And a similar disingenuousness is repeated throughout the book, with respect to herbicides, mercury, lead, and so on. Nor is the book helped by its untidiness of construction. It is repetitive and disorganized; it is full of inconsistencies and, astonishingly for one who is the editor of the world's most prestigious scientific

journal, it is poorly edited. But the heart of the difficulty is that while the book aims to be an attack on the pessimism of the doomday men and a reassertion of courage and a reversion to a quasi-utopianism, it reads too much like a quasi-official blandness attempting to pass official blandness as new world. Where technologies appear to be on the side of repression they will be rejected in favour of new messages. The messages may be misinterpreted, but they are not rejected. Dr Maddox may be right when he does not reject false prophets when they are explicit desires for personal vengeance (being a man of eminence within advanced industrial society which is on his side), he assumes that there are no problems, and so falls to see what the prophets of doom actually say. It is because of this lack of imagination that he plainly believes that society can adjust to all the problems. He does not engage with the radical political wing of the ecology movement, which argues that pollution is a consequence of the capitalist order of society rather than technology as a juggernaut; he ignores its existence, preferring to tilt at cavier targets.

Hence he cannot offer what the ecologist must to counter doom: the promise of a transformation of society and technology, from oppression to liberation. Dr Maddox, prisoner of the system, doesn't realize that he, too, needs to be liberated.

## Globe trotting

The Atlas of the Earth  
Edited by Tony Loftus with others.  
144pp Text 303pp Atlas and Index.  
Mitchell Beazley with George Philip and Son. £13.95.

This is very much more than an atlas. The first 143 pages are aptly described as an "environmental encyclopedia". They are followed by a four-page index. The conventional atlas, comprising maps of the world, occupies 176 pages, there are seven pages of climatic graphs, four more showing the locations of National Parks, and a final index and gazetteer of 112 pages. The whole volume weighs nearly nine pounds.

The standard of printing, by Smeets N. V. Weert of the Netherlands, is superb. The colours are good, and their registration perfect—nowhere does any printing of any colour appear to be even a fraction of a millimetre out of register.

The encyclopedia section is called "The Good Earth", though its scope is even wider, for it starts with a succinct account of the whole universe, space, our galaxy, the solar system, the moon. Here, as elsewhere, the diagrams are clearly drawn and are accompanied by excellent photographs. For instance a two-page spread of shots taken from Apollo spacecraft. The wealth of illustrations, which cover in almost all cases the greater part of each page, may give the misleading impression that this is only a picture book. However, the amount of text is substantial, and for the most part, it is well written, and contains an enormous amount of basic information. Thus, there are some 12,000 words of text on the pages displaying the pictures of the universe, though the letterpress is divided up in such a way as to avoid giving the impression that this is a book which needs to be read, rather than just looked at. An attempt is made to impart this knowledge almost by stealth.

The other sections in "The Good Earth" are equally informative. Climate and weather are dealt with in such a fashion that weather forecasts will begin to take on some real meaning. The accounts of the structure and geology of this planet are equally illuminating.

The substantial section entitled "Life on Earth" describes the origins and evolution of living organisms, from the beginning of geological time to the present day. The ecological sections, describing in considerable detail the main environments, from the arctic to the tropics, are particularly well produced. "The

very simple, that people are being and disturbed by the vulgarly and cruelty of a society which potentially seems so wealthy, that they need secular prophets to dream visions to help them mould a new world. Where technologies appear to be on the side of repression they will be rejected in favour of new messages. The messages may be misinterpreted, but they are not rejected. Dr Maddox may be right when he does not reject false prophets when they are explicit desires for personal vengeance (being a man of eminence within advanced industrial society which is on his side), he assumes that there are no problems, and so falls to see what the prophets of doom actually say. It is because of this lack of imagination that he plainly believes that society can adjust to all the problems. He does not engage with the radical political wing of the ecology movement, which argues that pollution is a consequence of the capitalist order of society rather than technology as a juggernaut; he ignores its existence, preferring to tilt at cavier targets.

Hence he cannot offer what the ecologist must to counter doom: the promise of a transformation of society and technology, from oppression to liberation. Dr Maddox, prisoner of the system, doesn't realize that he, too, needs to be liberated.

Resources of the Earth" describes the landscape, and the underlying factors which produce it. It also indicates what materials are available to be used, or abused, by man in his finite globe which he inhabits.

The final theme is "Man on Earth", this describes the anatomy and physiology of *Homo sapiens*, and there is a good account of racial differences, with plenty of scientific diagrams and other illustrations. There is some overlap with the resources section in such topics as agriculture, but this is no disadvantage as the slightly different slant is illuminating. The title "The Good Earth" is perhaps belied in the sections on pollution, this could perhaps be called more aptly "The Bad Earth", except the man's culpability and responsibility is clearly indicated.

The maps making up the conventional atlas are well produced, accurate, and reasonably up to date, though the old name of 'Ceylon' remains for what is now called Sri Lanka and time has not allowed Bangladesh to replace East Pakistan. However, there are in existence many equally good, and several much more comprehensive, atlases of the world. This does raise some doubts about the function of the whole volume: there are many real reasons to combine two parts, and may not this combination reduce the usefulness of both? £13.95 is a lot of money, and for page for the atlas part is expensive in comparison with other atlases of produced simply as collections of maps of the world. A book of this size and weight is not easy to handle, and it may be feared that in this form, those who would benefit most may not get down to the considerable task of seriously studying the printed text, which is well worth reading with considerable concentration.

On Evolution by John Maynard Smith (125pp. Edinburgh University Press. £1.50, paperback 75p) is a collection of nine essays by the Doi of Biological Sciences in the University of Sussex. Except for one on "Game Theory and the Evolution of Fighting", all the essays have previously appeared in journals or proceedings. They include "Evolution and History", "Eugenics and Utopia", "The Status of Neo-Darwinism", "Time in the Evolutionary Process", "The Causes of Polymorphism", and "The Origin and Maintenance of Sex". In an introduction the author discusses the state of evolution theory today, more important problems, and likely development.

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founding source of our experience of the world. This has radical consequences. For it shows that man is his body; that the body is not an isolated given and is in no way equivalent to a material object. This is what Aristotle was getting at when he said that the eye of the corpse is not an eye because only that which is animated can really be an organ. The eye is for looking as well as being looked at.

But when this is forgotten the body is treated as an instrument which is somehow interposed between "us" and objects. This leads to the assumption that the senses get information about the outside world and pass it on to the brain. It presupposes that there is a frontier between what is "inside" me and the "outside" world. It then becomes necessary to give an account of how I, being "inside", can infer the presence of and get information about objects that are "outside".

It is often assumed that information about objects has somehow got to be translated into the appropriate language of perception. But this is absurd, for to be able to translate one must already know two languages, one must have the set of data to be translated and the set of data into which the first is to be translated. But this is inconceivable in the case of perception, for the first set of data is by definition not given to the perceiver as it is outside him. And if the message is called untranslatable or irreducible, then again it is not a message since to be a message is to admit of translation or interpretation.

The confusion arises because it is forgotten that our own bodies are uniquely ours and that perception is something we personally are involved in. For whenever we perceive we can always say I see, I touch, etc, and we can only say this from where we are. The world is what I live through, not what I think or infer or interpret. This bodily synthesis goes about its business so silently that only unusual experiences reveal a fissure in the otherwise unrelieved atmosphere of the ordinary world unless, of course, phenomenological reflection is systematically practised.

Some experiences in the mentally ill and with hallucinogenic drugs confirm that the perceived world is not a purely objective datum made up of

facts which we can observe, measure and control.

Subjects under the influence of hallucinogens report how their altered relationship with the world is perceived in the modification of object impressions and how it transcends the individual senses. Spatial forms change in ways difficult to describe and at the same time the subject experiences a change in his own body. Temporally alters. Within this altered time sense the subject's own becoming appears as transformed. Often the subject is not sure which one of his senses it was that gave him certain impressions; he may no longer know if he is seeing or hearing. The scientists' notion that the senses are things that can be rigidly divided and catalogued is discredited.

In a less dramatic way, depressive patients not infrequently report the impression of floating while walking, they speak of the ground beneath them losing its firmness and they may have an uneasy feeling that they are sliding off it. But neurological tests show no evidence of impairment. Although they cannot free themselves of the impression of hovering, sinking and gliding. For the ground is firm only for him who has a firm stance upon it, who is well rooted in his world, who is ontologically secure and who can limit himself as over and against his world. Objectivating thought negates this experience and dismisses it as illusion.

In perceiving, we do not only group the properties of things. The situation is, rather, that objectification shapes itself in a variety of ways along with the alternating manner of being between self and world.

I have suggested that it is impossible to reduce the experience of perceiving to a relationship between nervous-system and stimuli. But although the function of the brain, understood as physical and chemical, does not explain experiencing, nor mirror its content, yet the behaviour of man and animals depends upon the integrity of their bodily existence. So what, then, is the relationship between experiencing and the brain?

The answer is self-evident provided we do not succumb to our ingrained tendency to think in a language which takes the world as a series of facts independent of human activity in it. As we have argued, perceiving is a sympathetic experience for we experi-

ence ourselves in and with our world. This "with" is not a conjoining of one piece of experience, "world", and another piece of experience, "self". The unitary phenomenon is always an unfolding towards the poles of self and world.

Physiologists, however, confuse perceiving with the content of perception. This is taken to have a relation with neural function so that any particular 'in-perception' corresponds to a particular condition of the nerve centres. To the single stimulus, it seems, correspond isolated conscious impressions. Optical stimuli are assumed to elicit patterns of visual impressions causing the seeing as well as the content of the seen.

Causal relations, though, are limited to particular events, and the stimulus as physical energy affecting a sensory organ is such a limited event in perceiving, however, the stimulus arouses the organism to its own activity. The stimulus produces a limited perception, namely that which I perceive now. It does not produce the perceiving but actualizes and at the same time limits it to the actual.

Perceiving transcends the here and now. The actual situation is only a limitation of possibilities. My position here and now is the hub of my spatio-temporal orientation. The actual moment is a divide between the future and the past. Future and past are personal lenses of time that are always related to the present of an experiencing being. It is always from this centre that the surroundings reveal themselves as a field for observation.

We do not experience timeless data of consciousness nor bits of information but the world in which there are objects for us. We are turned towards the world in expectation; we are open to it, and therefore behave receptively and neither passively nor actively towards it.

So what does the brain do? The brain is an organ in the original meaning of the word—that with which one works. It mediates between physical happenings and the world which appears to the experiencing being. It brings order to the flux of physical energy that surrounds the organism so that man and animal can find their bearings, observe, and act in it.

Dr Heaton as an ophthalmologist and psychoanalyst.

## The world's weather

H. H. LAMB:

Climate: Present, Past and Future  
Volume 1: Fundamentals and Climate Now.

613pp. Methuen. £11.

This weighty volume is the first of a two-part publication surveying the systematic causes and conditions of world climates. Few people would have had the academic stamina to tackle H. H. Lamb's enormous task and even fewer possess the breadth of knowledge to cover such a broad spectrum of meteorology. Almost the only aspect of climatology which is not dealt with at some length is that of regional climates per se, although contrary to what the title of the book suggests, there is also little specifically about future climates.

On the whole, Professor Lamb has succeeded in mastering the many scientific skills necessary to interpret the systematic aspects of the world's climates now and in the recent and more distant past. This ability to fit together, like the pieces of a four-dimensional jigsaw puzzle, such diverse items of evidence as carbon-14 dates, the testimony of ice deposited centuries ago as part of the Arctic ice-cap, the records of harvest successes and failures and the location of medieval vineyard terraces in England, is one which Professor Lamb has developed over many years of research, during which time he has established himself as one of the world's leading climatologists. In the past, his particularly distinctive studies in climatology have dealt with the description and interpretation of past climates in terms of our present understanding of atmospheric processes, particularly those of circulation. These skills are amplified in this

compendium of systematic climatology.

Volume 1 is divided into two sections. Part one, entitled "The Fundamentals of Climate", comprises ten chapters dealing respectively with: concepts and definitions; radiation and the heat balance; the general circulation of the atmosphere; seasonal changes; the stratosphere; cyclic and quasi-periodic phenomena; anomalous patterns of atmospheric circulation and their associated weather and climate; the oceans; the water cycle; and some observed causes of climatic variation. The emphasis in each chapter is upon the physical and dynamical explanations of the systematic aspects of climate such as the patterns of net radiation and atmospheric circulation, not only at present but also over recent centuries. With appendices, these ten chapters occupy about four-fifths of the book. Explanations are given in some detail and are frequently expressed in simple mathematical equations. There are only a few explanations of weather (as distinct from climate) phenomena, and in these especially Professor Lamb sometimes seems to be on less sure ground. The explanations of foehn winds and halibutons, to take just two instances, are rather inadequate and out of date.

Part two gives a tabular and cartographic framework of present and past climates. There are seven maps showing global distributions of such interesting measures as the frequency of hot days, days with air frosts and raindays, plus a simplified map of Köppen's classification of world climates. These are followed by a varying selection of average and extreme monthly temperatures and rainfalls for 239 stations throughout

the world. The volume is completed by forty-one pages of references and a seventeen-page index.

Meteorological science has made tremendous advances of understanding during the past few decades and climatology, which studies the integrations of weather in real space and time, has participated in this advance. It has grown from little more than a descriptive, classifying subject to one that uses physical and dynamical principles in the analysis of spatial and temporal patterns of atmospheric behaviour. It is now a true branch of geophysics, as is well illustrated by this textbook. Professor Lamb shows also how inappropriate is the outdated concept of climate as average weather. Variations of atmospheric conditions over days, weeks, months, years, decades, centuries and millennia make up the constant inconstancy of climate so that it is not only statistically difficult adequately to define average conditions but meteorologically unjustified, at least in the absence of some measure of variance. Professor Lamb's painstaking analysis of these variations leads, naturally to speculation about future conditions and the better we understand the past, the surer we can build the framework for scientific climatic forecasting.

In spite of the occasional slips, Professor Lamb is to be congratulated on producing such an informative book, one which is almost certainly destined to become a classic synthesis of our present understanding of physical and dynamical climatology. The volume is illustrated by 50 tables, 185 line-drawings and two monochrome plates. Volume 2, to be published at an unspecified later date, will summarize much of what is known about past climates, so it too should be a very substantial work.



# A menagerie and its manners

Grzimek's Animal Life Encyclopedia  
Volume 10: Mammals I  
Edited by Walter Fiedler, Wolfgang Gerni, Bernhard Grzimek, Dietrich Heilmann, Konrad Herter and Erich Thienius  
Translated by Renata Geist and Erich Klinghammer  
627pp. Van Nostrand Reinhold £10.38

It is perhaps unfair to judge a large work on the basis of a single volume, but the rest have been published, but if the mammal volume (part one only) of Bernhard Grzimek's *Animal Life Encyclopedia* is representative, then the venture is rather disappointing. First published in German, and subsequently in French, Italian and Dutch, the encyclopedia is claimed by its promoters to be the most significant one devoted to animal life since Lydekker's *The Royal Natural History* published at the end of the last century. Much depends, however, on the meaning of the word encyclopedia and the audience for whom it may be significant. The *Traité de Zoologie*, for example, is of very great significance to zoologists and for them is the best encyclopedia of all.

The key to Dr Grzimek's *Encyclopedia* lies in its title: not *Animal*, but *Animal Life*. The emphasis is on what animals do, their habits, behaviour, feeding and breeding biology, that is to say, the general biological information handled by the field zoologist which is now of interest to a growing body of non-specialists. Anatomy, physiology and ethology take second place, sometimes in an almost apologetic manner. The class as a whole, its distinguishing features, its peculiarities and its evolution are compressed into a mere

fifteen pages. Hearing, olfaction and vision merit half a page each (with-out diagrams; few could visualize the intricacies of the cochlea from the rather garbled description). The reproductive organs are dismissed in a scant fifteen lines. Clearly, this is no book for the student, or for the zoologist (as opposed to the animal lover). If the publishers' claim that the work is "scientifically complete" and "a standard reference for professional use" is scarcely justified. Sir Julian Huxley's recommendation of the book as "a masterly work" is puzzling. It falls far short of its claim to be "the most up-to-date compendium of our knowledge of the entire animal kingdom", not so much because it has a rival but because it promises a spectrum of knowledge that is not fulfilled.

An encyclopedia is usually a reference work, most frequently arranged alphabetically. In this case the arrangement is systematic and the book is more easily read than dipped into. The species headings are not obvious on the page, but there is a very thorough index of Latin and vernacular names and retrieval can be quite rapid. To retrieve information on a topic, however, is quite another matter. Reproduction, for example, is exactly "two" page-references in the index, the first refers to the fifteen-line description of mammalian reproduction in the introduction, and the second is an apparently chance mention picked up on the first page of the section on marsupials (on the basis of the key words *vagina* and *penis*, the first of which is not indexed at all and the second not mentioned for this page, nor indeed for anywhere in the book after page 50). Information is thus keyed only to species and genera. Short of reading the entire volume, comparisons are therefore limited to those chosen by

the authors. In fact, although a huge amount of information has been assembled, the volume is seriously impaired by the poor organization of the material. It fails to meet the requirements of an encyclopedia and becomes a large book.

Concise zoological statement, often without explanation of terms, is followed by rather informal narrative which breaks from time to time into the first person. Once their distinguishing features have been set out, in short descriptive bursts, the smaller mammals tend to become "little fellows" with captivizing habits. The level of the text is essentially popular, as for example:

Occasionally, sudden loud sounds frighten the animal to such an extent that it dies as a result. Death due to shock occurs also in other animals and is usually caused by an excess of certain hormones released into the blood by various glands. This condition is known as "stress". The reader might want to know which glands and what hormones but he has no method of finding this out (stress is indexed only to this page). The list of supplementary readings at the end of the volume is heavily biased towards the Primates, which have three and a half pages of references to books and papers (including Richard Owen's paper on the eye-eye of 1866). Marsupials, Monotremes and insectivores, which take up nearly half the volume, are together served by only eight references (no mention, among other works, of

Frith and Calaby's excellent book on kangaroos). In the general section on *Birds* Harrison Matthews's *The Life of Mammals* is omitted. In the text itself, sources are not cited beyond the author's name, which may not appear in the supplementary readings.

The translation is less than competent. Among the many curiosities in the text one encounters "the Baron of Rothschild" at his "castle of Tring"; "William Cleft promoted to 'professor of surgery'; and Edmund Edward Typson, Sir Everard Home and a 'bowdlerized' aboriginal name: pademelon have a 'low pronative' ductive rate"; the "London British Museum" (was there another?); and "the British Zoological Society held a conference in the Canadian city of Montreal" in 1884 (British Association). Direct quotes translated into English can have unfortunate results. It is surely unlikely, even if translators and editors had no access to the original source, that the eighteenth-century "handbill" (correctly "broadside"), advertising the famous "kangaroo" (actually Kangaroo) exhibited in London would have described the animal as "150 meters [sic] high".

For all these criticisms, however, the volume is not without its merits. There is an excellent four-language lexicon of names, repeated four times (English, French, German and Russian—the Latin names combined with the German). Endangered

species and subspecies are indicated at first mention. The plates are mostly of a high quality and those that have been drawn are very good indeed. The broad black margins contain small sketches illustrating the text or showing parts of whole animals. Every species gets at least a name and a descriptive note at the end of the volume. The complete set of thirteen volumes will fill an impressive yard on shelves of those who can afford it (for £120 for Charles Scribner's more than impressive, however, is unnecessary. By using an expensive heavy-weight paper, the present volume is an awkward and awkwardly bisected large book, no putatively tearing his beloved Lydekker's would here be tempted to a second attack.

Dr Grzimek has served zoology and mankind well. His early work on diseases of poultry and cattle, his virtual recreation of the Frankfurt Zoo, his development of Tanzania's conservation programme, his books and his films, have earned him a deserved reputation as one of the great leaders in the battle to preserve and to appreciate more deeply our zoological heritage. Within the context of this battle, and whatever its shortcomings, his *Animal Life Encyclopedia* is still a remarkable contribution.

CELEBRATE International Book Year the Bibliothèque Nationale at Paris has put on an exhibition with the rather off-putting title "Le Livre". But this is no discreet assemblage of "treasures", hermetically sealed from real life in dusty-looking cabinets. Books are shockingly difficult things to display: if one is shown the cover, one longs to see the text; and so on—what one can see is never enough. How, then, to show off and explain not just a book or books but the book, the vehicle for serious reading in all its forms for thousands of years?

Faced with these difficulties, the Bibliothèque Nationale has put together all its considerable resources borrowing a little, but very little, from outside) to produce a complete account of the forms in which books were made and distributed, from Ancient Egypt to the present day. Some of the choices may seem a little odd or far-fetched, but by and large it is well, even tightly organized. No effort has been spared to make it visually attractive: every one of more than 700 exhibits has been chosen not only because it illustrates a point in the history of book production but because it looks well, both in itself and in its general setting. There can never have been an exhibition of books more exciting to look at. The whole thing, stretched along two thin galleries at the Bibliothèque Nationale, is like a prolonged pyrotechnic display, each new theme announcing itself with a bang and a flash of multi-coloured sparks as one walks from case to case.

It begins well, with a remarkably wide selection of the elements, mostly Oriental, from which the book was known to grow up—Egyptian papyrus, baked clay from Mesopotamia, Hebrew scrolls, but including the ninth-century Mayan *Codex Perseus* on native paper, one of the four surviving documents written before the Spaniards arrived. Here, too, are early Chinese and Arab papers, seventh-century Chinese rolls printed from blocks, and fourteenth-century Korean books printed from

movable metal types. It is remarkable how little the library has been forced to borrow from outside to provide such a full and diverse display.

The core of the exhibition comes next, entitled (with characteristic grandiloquence) "Genèse et Métamorphoses du livre occidental". Within this framework, the physical constituents of books, from late classical to modern times, are analysed and illustrated. It begins with the manuscript books, the preparation of vellum, the copyist's work (shown from a Gallo-Roman stela of a man writing to an elegant *grasaille* picture by Jean Le Tavernier of 1456), and his instruments, pen, ink, chalks, ruler, and even a reconstructed pair of medieval spectacles from the Musée de Cluny.

After a section on paper, there comes the invention of printing itself, with an early Donatus fragment, the indulgences, the 42-line Bible with rubricator and binder's colophon dated August 24, 1456, and the portrait of Gutenberg with an engraved punch in his hand. After block-books and a parenthetical section on the dispersal of the invention to Italy, France, the Far East and America, the "technology of printing" is well shown, partly with material borrowed from the Imprimerie Nationale, with early examples of copy and proofs and the early manual of Fertel, with models of presses, and a series of line illustrations, from the plates engraved by Simonneau for the *Description des Arts et Métiers* set on foot by Colbert.

The section on the form of letters, in manuscript form and printer's type, is poor even within the rather narrow national limits chosen, but the presentation of *Le Livre*, which follows, shows in fascinating detail the growth of titles, headlines, catch-

# The Book at the BN

words, and so on, in the Bible of Theodulf (early ninth century) and other early manuscripts, carried on, in early printed books—an opportunity to show the library's one surviving copy of the 1457 Psalter, the recent loss of the other being lamented in the catalogue reference to the importance of the "difference between the ten copies that survive".

By the middle of the sixteenth century, typified by the fine Vascon folio of Ariosto, 1555, the layout of the book as we know it today was established. This part of the exhibition ends with some irrelevant but visually entrancing sections on "Calligrammes" and "Formes Insolites".

The decoration and illustration of books, manuscript and printed, is a subject that calls for the riches of the Bibliothèque Nationale, and here they are, from the little Roman tablets with the text of the Iliad interspersed with carved illustrations to a series of pages from the *Grandes Heures du Duc de Berry*, as well as some unfamiliar treasures like the Sacramentary of St-Sauveur de Figeac, with its fine little rustic illustrations. The conversion of medieval themes, often borrowed from earlier sources themselves, into the woodcut blocks that formed the staple illustration material for early printed books is subtly shown, and finally come the magnificent engravings of the seventeenth and eighteenth century, when France led the world, and the revival of the wood block with the new process of lithography in the nineteenth century.

There is a brief and inconclusive attempt to illustrate the impact of photography on books, which, however, includes the original patent and prospectus of Gifford's *Panoramic Photography*, the forerunner of the relief photo-engraved printing block or cylinder still universal today.

Binding offers another well-taken opportunity, not only to show some of the library's earliest examples, its pair of Coptic covers, the ninth-century Corbie *Sacramentary of St-Éloi*, and its treasures in ivory and Limoges enamel, but also a series of more ordinary books such as a twelfth-century Alcuin with its title-label still fresh and a fifteenth-century Gerson complete with clasps and chain. The subsequent history of binding is followed by way of the differences in the means of manufacture, stamps, rolls, fillets, mosaic and so on, repeated when it comes to "cartonnage", an ingenious system, again visually interesting if historically inconsequential.

Switching from the physical make-up of books to "Production et Diffusion" involves some considerable overlap, compassed without strain on the resources. Among the examples of the monastic scriptorium at work, there is a fine twelfth-century Psalter (use of Cologne), with a special order of blessing for a scriptorium. The transference of book production into lay hands is well documented: the *pecia* system, which originated in Paris, is marked by the original text of the University's regulation of the book-trade of 1275. With the press came the sale of books by catalogue and auction, a display culminating in a wonderfully vivid series of posters large and small, by artists like Johannot and Cheret (and even Manet) designed to be affixed (in the French manner) to the inside and outside of booksellers' shops.

The organization and regulation of the press provides an opportunity to exhibit the Bibliothèque Nationale copy of Servetus's *Christianismi restitutio*, one of the three surviving copies of the original edition of 1553,

actually rescued from the flames of the scaffold and a little scorched in consequence. The change in the remuneration for authors from the patronage of the rich or noble individual to that of the mass market is signalled by Ronsard's receipt of 600 livres from the Royal Treasury for his *Franciade* and Victor Hugo's for 150,000 francs against the sale of the first 150,000 volumes of his collected works. That elusive quantity, the literate public, is picked out with association copies (Rabelais's Plutarch, an opera by Grétry bought for Marie-Antoinette), with a series of short subject lists, the Classics (from the ninth-century codex Patavinus of Plato to Fenelon's *Télémaque*), books of devotion, education, encyclopedias, medicine and the domestic arts, travel, and even works of the imagination. This last is an odd assortment, omitting the *Chanson de Roland*, Racine and Corneille, and including but one work by a foreigner, the *Divina Commedia* (the Folgo no first edition, which celebrates its quincentenary this year).

The exhibition ends with a triumphant polychrome rocket in a series of masterpieces of book production made for the Kings of France, from the Echternach Gospels and the Bibles of Charles the Bald, the Painter of St-Louis, the *Petites Heures de Jean de Berry*, to the magnificent Paris bindings of the sixteenth century and after. (The modern luxury books and *livres de poitrine* are uneasily included here.) Here the Bibliothèque Nationale takes the opportunity to show off two of its most recently acquired treasures, the Hours of Jeanne de Navarre and a Prayer Book of Philip the Good, Duke of Burgundy. The first is a well-known masterpiece; the latter has been secluded in family possession in Provence. Their acquisition is an instance of the continuing vitality of the library.

"Le Livre" is an event not to be missed. The exhibition remains open until October, and it is worth a special visit, as a sample of the wealth of the Bibliothèque Nationale, as a comprehensive picture of every aspect of books, and above all as a vivid and fascinating spectacle.

## Books received

### Art and Architecture

TIMOFIEWITSCH, WLADIMIR. *The Chiesa del Redentore*. Corpus Palladianum: Volume III. 78pp plus 70 plates. Pennsylvania State University Press (AUPG). £8.50.

When the plague struck Venice in 1575, Doge Mocenigo and the Senate decided on theological advice to erect a votive church on the Giudecca where it could be clearly seen from the city and approached by ceremonial processions over a bridge of boats. "Fedel nostro" Andrea Palladio was instructed to prepare a design based on a T-cross. The result was another of his masterpieces of proportion and the handling of space. Some of his inspiration was drawn from Bramante and early Roman baths, but the dome is Venetian-Byzantine and the two bell-turrets look almost Oriental. This third volume in the elegant "Corpus Palladianum" series—there are others to follow—describes with the aid of many pages of photographs and detailed drawings how Palladio overcame the architectural problem. Il Redentore tends to be overshadowed by nearby San Giorgio, also by Palladio. This volume calls attention to the equal architectural merits of its smaller church.

### Biography and Memoirs

LAIRD, M. A. (Editor). *Bishop Heber in Northern India*. Selections from Heber's Journal. 324pp. Cambridge University Press. £6.60.

Two years after Bishop Heber's death in March, 1826, his widow published the famous *Journal*, compiled from notes and letters written to her during his tour. Its immediate success was well deserved; as Dr Spear, himself a leading authority on India at the time when the journal was written, has remarked: "It is quite the best description of India in the twenties." Heber's powers of observation, like his powers of expression, were remarkable; and he had the knack of penetrating the surface of things and discovering essentials. Had his warnings of dissatisfaction over repudiated grievances been heeded by the authorities, the Sepoy

Mutiny of 1857 might never have occurred. His *Journal* is not his only title to fame: he was an excellent organiser and a man of wide human sympathies. Heber's place in the history of the Christian Church in India, his relations with the Evangelicals and the High Churchmen, whom he described as "the two fiercest and foolishlest parties that ever divided a Church" are clearly set out in M. A. Laird's admirable introduction.

ORTZEN, IREN. *Famous Arctic Adventures*. 156pp. Arthur Barker. £1.65. And not so famous. The dozen or so adventures related by Iren Ortzen span the years from the sixteenth century to the present. There are forgotten Danes and missing Swedish balladists as well as Frøbisher and Hudson. Mr Ortzen writes with a sense of the Arctic drama. His briefly told tales are well rounded but there is a bibliography for those who would take them further.

PERRY, COLIN. *Boy in the Blitz*. 220pp. Leo Cooper. £2.25.

The Imperial War Museum evidently regard *Boy in the Blitz* as an interesting document and this is not surprising. There can be few unofficial accounts of the air attacks on London in the autumn of 1940 as copious as Colin Perry's diary, and his age at the time—eighteen—must make it unique. "The untrained outpourings of a proud and totally insignificant Londoner", the mature Mr Perry calls it in a foreword; but more valuable than anything he can contribute now is the negative virtue of having left the diary complete and unedited. It is the total statement of an immature personality subjected to a total experience. The style is often atrocious by normal standards, but it is right to have it all in routine heroics, callow exuberance, bursts of fine writing and all. He longs to be a fighter pilot and soars into Mitty-like episodes among the Messerschmitts. Equally romantically he yearns after girls, making eyes in tea-shops as the bombs fall. Vivid bits of reporting penetrate the self-consciousness: "A woosh, a scream, the draughtboard jumped inches into the air"; or "Kennington was havoc, water and glass".

SEN, N. B. (Editor). *Wit and Wisdom of Indira Gandhi, the Uncrowned Queen of India*. 336pp. New Delhi: New Book Society of India. Rs25.

N. B. Sen is an indefatigable collector of the sayings of the great; he has already compiled many books

devoted to the wit, wisdom, and reflections of such varied personalities as Plato, Shakespeare, Napoleon, to say nothing of Gandhi, Nehru and Tagore. It was perhaps inevitable that the present Prime Minister of India should find a place in this pantheon, although a place he may be open to doubt whether to extract collected in this book or measure up to the standard set by some at least of her fellow members. But her triumph over Pakistan and her overpowering victory in the recent elections have raised her prestige among her countrymen to a height comparable to that which her father enjoyed in the heyday of his power, and the kind of immoderate adulation which it is book represents seems to typify the mood now prevailing in India. Non-Indian readers may console themselves with the reflection that the extracts here selected, although they illustrate Mrs Gandhi's policy and personality do not claim the "universal relevance" which the People's Republic of China accords to the *Thought of Chairman Mao*.

THEASIE, GEOFFREY. *Samuel Pepys and his World*. 128pp. Thames & Hudson. £1.95.

This is a pleasing introduction to the life and character of Samuel Pepys, and to the London of the late seventeenth century. Geoffrey Theasie has written an account of the diary life which is nicely balanced between the public and the private, the house of business at the office and the house of relaxation at the theatre, at taverns and elsewhere. In the circumstances one can hardly expect many new insights, but Mr Theasie is a sensitive and perceptive reader. The numerous illustrations are well chosen to support the narrative, many of them being drawn from the Pepys collection at Magdalene College. What everything else is so workmanlike is a pity that the dust-wrapped book is not checked more carefully. It is absurd to say that London in the dawn of Pepys was "scarcely more than a big village", nor is it true that "the years before he died, Dutch William landed in Devon". Pepys survived the landing of "Dutch William" more than fourteen years.

TURP, ROBERT. *Gumrah. The Confessions of an Army Doctor*. 194pp. W. H. Allen. £2.50. Robert Turp moves in a world of mysterious foreigners of the sort he is apt to identify only as "Madelaine" or "von X". It is the swashbuckling world of the arms trade and he is

## British Bookbindings

The exhibition "Modern British Bookbinding", on at the Victoria and Albert Museum from June 14 to July 16, consists exclusively of the work of Designer Bookbinders, a group of twenty-one binders, who have joined to promote their view that the design and the execution, in all its different processes, of the binding of a book is an integral operation. They are opposed to the school which separates design and execution; that, they believe with some justice, can have a damaging influence on the structure of binding. Altogether 104 bindings are on show, with at least one from every member of the group, and despite their common philosophy, the appearance of the books is surprisingly different. The work of Edgar Mansfield, with Sydney Cockerell the senior member of the group, is perhaps the best starting-point: the moulding of the leather, with a simple calligraphic line in tooling linked with inlays to provide a characteristic abstract design, is immediately recognizable. Cockerell, on the other hand, shows a restrained mixture of rules and gilt decoration on natural vellum.

Most of the others have some sort of affinity with one or the other. Elizabeth Greenhill and Arthur Johnson, with elaborate multiple inlays, show some influence of the current styles in Paris (where designer and binder are often separate). Ivor Robinson, the present president of Designer Bookbinders, has a restrained but complex line in calligraphic tooling, while Philip Smith controls his kaleidoscopic assemblage of polychrome feathered unblays and sectional inlays with great bravura.

But one aspect of the show is consistently disappointing, namely the lettering. Owing to the cost of tools, no doubt, the quality of design and finishing of the titles of the books is poor and monotonous. Desmond Yardley's restrained and beautifully spaced all-over lettering for the Ashendene *Ecclesiastical* is spoilt by the poor stamps he has used. Only those who "make up" the lettering from decorative tools have achieved a reasonable degree of harmony between words and design. But it is clear that it is not a subject that interests modern binders (with the possible exception of Ivor Robinson), and most prefer to "lose" the lettering, either by reducing it very small or merging it in some other way in the overall design.

All in all, the exhibition (which has come to this country last, after three different shows in the United States, at New York, Chicago and Los Angeles) augurs well for the future of bookbinding in this country. The skill and invention is there, and only one thing further is needed. There is a sad controversy now between the traditionalists, who believe in building a binding from the inside out, and the modernists, who enforce the exterior design pattern upon the forwarding. It has led to the resignation of Roger Powell and Peter Waters whom, as Bernard Middleton points out in his introduction, the group can ill afford to lose. If this rift can be sealed with mutual understanding, then the Designer Bookbinders can look forward both to an increase in patronage and to an increased voice in the trade as a whole.

## Antiquarian Book Fair

The fourteenth Antiquarian Book Fair, organized by the Antiquarian Booksellers' Association, took place last week, June 13-15. It was the second to be held in the comfortably spacious room at the Europa Hotel, and although it lacked the added impetus of last year's International Congress of Antiquarian Booksellers, it was quite as populous and busy, if not more so. Some of the foreign guests did not come a second time; but their place was taken by others, and the contingent of British booksellers was as strong or stronger than last year.

The books were as varied as last year, ranging from a leaf from the 42-line Bible (H. M. Flecher) to the latest, hardly out of print, first edition; from the first edition, first issue, of the Authorised Version (A. G. Thomas) to *Canary-Birds Naturalized in Utopia*, a satire on the Huguenot émigrés published in 1709 (Hofmann and Freeman) and *London Tests 1685*, a hitherto unrecorded work (J. F. T. Rodgers). Tulken of Brussels had a fine and complete copy on vellum of the *Decretales* printed by Peter Schoeffer in 1470. Maggs a remarkable set of early printed books, including a beautiful if slightly imperfect copy of Ulrich Han's *Plutarch* (Rome, c. 1470-71), and Quaritch two of the Shakespeare folios. But besides these grand books there were plenty of more modest things, like Mervyn Peake's first book of poems, *Shapes and Sounds* (E. & J. Stevens), an elegant Victorian three-dimensional panorama of the Thames Tunnel (Francis Edwards), a fine "republican" binding of Thomas Holliwell (A. Rogovskii), and two of Chivers's elegant and now appealing "vellum" bindings (C. Warrack).

There were several good association copies, such as *Livy Comitus* (1532, with the signature of Nicholas Udall, headmaster of Eton and author of the first printed comedy (Deighton and Bell), and D. H.

Lawrence's *Amores* 1916, ungrammatically inscribed "To my brother George from the author" (Rota). Elsewhere could be found a 3ft x 2ft illustrated account of the coronation of Tsar Alexander II in 1856 (Weinreb), and a marvellous set of twelve pre-Napoleonic watercolour views of Moscow, at once accomplished and slightly naive (B. M. Israel)—this was one of the most original pieces in the sale. There was a complete set of the official account of Cook's first voyage (Galloway and Porter), a beautiful illustrated and priced catalogue of Sheffield Plate (Orskney), and a fine uncut first edition of

Kent's *Endymion* 1818 in an almost contemporary cloth binding (Blekerstein). But the list could be extended indefinitely. The Fair is clearly a fixture now, and a valuable opportunity for the smaller or rural book-buyer to make the acquaintance of a large cross-section of the trade. It does not need a crystal ball to predict its future course, nor to forecast its success. Everything seems set fair, the promised dearth of salable old books has still not taken place, and the trade, with a sigh of relief, can now look forward to a whole sequence of fairs.

## German Woodcuts

Woodcut illustrations for books printed in the Upper Rhine district during the fifteenth and sixteenth centuries are the subject of a fine exhibition which opened in Basle at the University Library on May 23 and remains on view until July 15. Among the main purposes were to show a comprehensive range of books and prints grouped in such a way as to facilitate comparative study and at the same time to provide a catalogue which would serve as a useful reference work. Moreover, both exhibition and catalogue enable the collection to be surveyed to advantage. It is also hoped that the gaps revealed by the catalogue may be filled by later acquisitions, and that new discoveries will more easily be assigned to their correct place in the corpus.

Frank Hieronymus, who was responsible for the clear and compact mounting of the exhibition, has also prepared an excellent catalogue (147pp, 2 Sw fr.). It is a duplicated typeset record, providing full descriptions of the 223 items in the showcases, as well as the numerous complementary exhibits hung in

frames around the walls of the well-lit room on the first floor of the Library Building. Indexes are provided of illustrators, authors, titles, publishers, translators, editors, printers and places of publication and there is a short bibliography. For the early period the exhibits have been sensibly grouped and catalogued in chronological order; while the works of the most important later printers are shown together, splendidly effective exception has been made for missals and early Bibles which have been brought together in the showcases. Works printed after 1489 are arranged according to their literary content.

Most of the exhibits come from the University Library's holdings, but a few have been lent from private collections. A loan from the Kunstmuseum in Basle has made it possible to show several original woodblocks on which Dürer drew his illustrations for an abandoned edition of Terence's comedy *Andria* (printed for the first time last year by the Officina Bodoni, as reported in the *TLS* on February 4).



## How strong is the Old School Tie?

Are Public Schools as archaic as their image? Or will recent changes be enough to keep them alive and full? What has happened to fagging, cold baths and the beating of small boys by large boys? Can innovations like bars for sixth formers, the introduction of girls, longer hair, the decline of compulsory chapel, meet the challenge from the maintained schools? How much are parents prepared to pay and how long?

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